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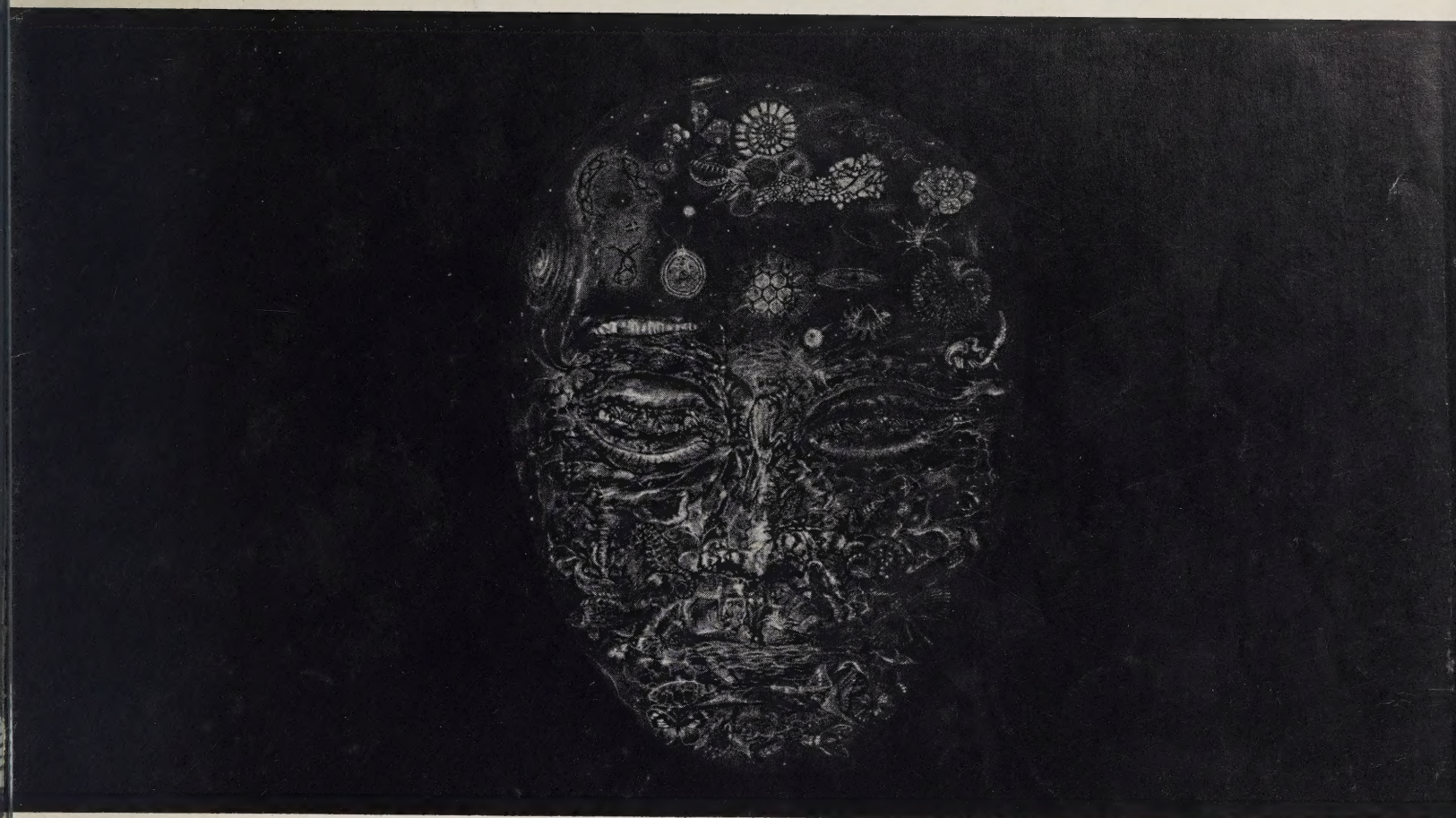


Reader,

This is a subscription teaser.

We had some 38,000 extra copies printed of a special section we did for **Harper's Magazine** *(April 1974). One has been sent to you free as a sample of our wares. (It cost us about 15 cents apiece to print and send.)*

You're invited to subscribe to **The CoEvolution Quarterly**, *$6/year (four issues). Order from:*

The CQ
558 Santa Cruz Ave
Menlo Park, California 94025

The first issue of **The CQ** *has just been completed. (Individual copies cost $2 postpaid.)*

We've never sent a subscription teaser before. Let us know if you think it's a bad idea.

Stewart Brand

The WHOLE EARTH EPILOG and The CoEvolution Quarterly are published by POINT, a California non-profit corporation. Editorial offices are located at Box 428, Sausalito, Ca. 94965.

This month WRAPAROUND launches the Whole Earth Epilog, an unexpected sequel to Stewart Brand's famous Whole Earth Catalogs. Like the Catalogs, the Epilog will offer ideas, information, and tools for anyone concerned with matters of sufficiency and self-sufficiency. Like WRAPAROUND itself, the Epilog will rely for its vitality on the willingness of its readers to share their experiences with one another. It is this sense of a family tie between the two enterprises that brought Stewart Brand and WRAPAROUND together, so it is a special pleasure to turn the section over to him as this month's guest editor.

Whole Earth Epilog

access to tools

Re-Introduction

The Whole Earth Catalog crew is six months into the preparation of a companion volume to **The Last Catalog** *called the* **WHOLE EARTH EPILOG** *(to be published Fall 1974). This preliminary issue skims as much cream off our research as we can cram into the* **Harper's** *"Wraparound" format.*

As before, the **EPILOG** *is a compendium of "access to tools" which are available by mail, high-quality/low-cost, and fostering of independence. As before, our research relies considerably on an active readership which sends in suggestions, reviews, and sundry for publication and payment ($10 per). Our editorial address:*

Whole Earth Epilog
Box 428
Sausalito, California 94965

The back part of this "Wraparound" is a preliminary issue of the resurrected "Supplement to the Whole Earth Catalog" now called **The COEVOLUTION Quarterly** *($6/yr. from Truck Store address, below).*

You can mailorder items listed in the **EPILOG** *either from the publisher/manufacturer or, when indicated, from the Whole Earth Truck Store or* **Harper's**, *whichever is closer to you. Those addresses:*

[W.E.T.S.]
Whole Earth Truck Store
558 Santa Cruz Ave.
Menlo Park, California 94025

[T. for L.]
Tools for Living
c/o Harper's Magazine
Two Park Ave.
New York, N.Y. 10016

Editor Breaks Promise

Some explanation is owed. In May 1971 we ceased making **Whole Earth Catalogs** *forever sincerely enough on the expectation that someone would quickly come along and fill the niche better than we did. Well,*

1) They didn't;

2) **The Last Whole Earth Catalog** *continued to sell 5,000 copies a week with increasingly outdated information;*

3) The North American economy began to lose its mind, putting more people in need of tools for independence and the economy as a whole in need of greater local resilience; and

4) After burning our bridges we reported before the Throne to announce, "We're here for our next terrific idea." The Throne said, "That Was It."

—SB, 1 Feb. 74

Understanding Whole Systems

Small is Beautiful

"If the renaissance is to have an economist to make its case before the world, E.F. Schumacher is the man." So says Theodore Roszak in his introduction to **Small is Beautiful**. *I think the claim bears out.*

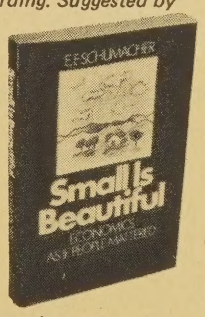
Schumacher begins with an assault on industrial growth, liquefier of three forms of 'capital' on which industrial development depends. He states the three as: fossil fuels (oil, coal, natural gas), biological capital, and the human substance. Fossil fuels are running down. An industrial system cannot create or recycle burnt fuels and no industrial system could persist without them. Even nuclear power must be run on fossil fuel supplements.

Human substance is harder to grasp, but ever so vital. In its essence it is trial and freedom, diversity of culture, and opportunity for error. Advanced and successful technology overseen by experts poses the threat and in no place is the threat more visible than atomic reactors. In no place is it better worded than in this paragraph from a technician of the technology: "We nuclear people have made a Faustian compact with society: we offer an almost unique possibility for a technologically abundant world for the on-coming billions, through our miraculous, inexhaustible energy source; but this energy source at the same time is tainted with potential side effects that, if uncontrolled, could spell disaster."

Social controls must be designed by these same technicians to assure that no radioactive quantities escape from reactors, transport, storage, or reprocessing. It is a technology that insists on a "world society in which wars or civil disturbances can never happen." Large mistakes oughtn't happen either. The blackboard postulates a highly ordered, infertile, and crystalline social organisation. Not worth living in.

He sums with this: "the modern industrial systems consumes the very basis on which it has been erected. To use the language of the economist, it lives on irreplaceable capital which it cheerfully treats as income."

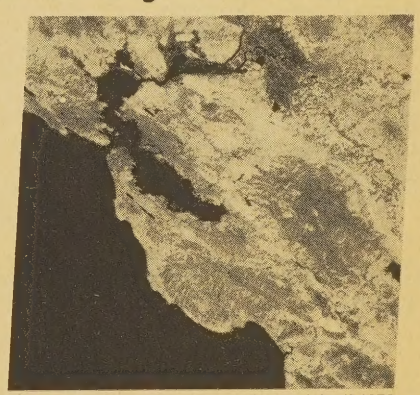
[Reviewed by Jim Harding. Suggested by Sterling Bunnell.]



Small is Beautiful
(Economics as if People Mattered)
E.F. Schumacher
1973; 290 pp.

$3.75 postpaid
from:
Harper & Row
Keystone Industrial Park
Scranton, Pa. 18512
or W.E.T.S. or T. for L.

It could well be that rich people treasure peace more highly than poor people, but only if they feel utterly secure — and this is a contradiction in terms. Their wealth depends on making inordinately large demands on limited world resources and thus puts them on an unavoidable collision course — not primarily with the poor (who are weak and defenceless) but with other rich people.



San Francisco and environs, 4 April 1973

EROS

Means: Earth Resources Observation Systems — one of the great bargains of self-portraiture. From 567 miles up a 115 mile x 115 mile photograph of any place of interest to you at nearly any time for $1.75 (9"x9" print). 40"x40" color is $25. Phone (605) 594-6511 or write:

EROS Data Center
Sioux Falls, S.D. 57198

The Ecologist

By far the most interesting ecological/political reporting and criticism available is this British publication. (One of their special issues, called **Blueprint for Survival** *is now a book, $5.95 from Houghton Mifflin.)*

—SB [Suggested by Paul Ehrlich]

The Ecologist
Peter Bunyard, Edward Goldsmith, eds.

$12/yr. monthly
from:
The Ecologist
73 Molesworth St.
Wadebridge, Cornwall
PL27 7DS
ENGLAND

Land Use

Back to the Country

When we ceased our research in May, 1971 there were exactly no books available on buying country land or introductory farming. Now there is a proliferation and more coming. Here's what we've sifted so far.

Purchasing land is so big a deal that you should read everything available, particularly since there's scant overlap of information in these books. **BUYING COUNTRY LAND** *is brief, technical, best on water considerations (Boudreau is a geologist), aimed at the country homesite buyer.* **BUYING COUNTRY PROPERTY** *concentrates on evaluating farm land and old farm buildings.* **PEOPLE'S GUIDE TO COUNTRY REAL ESTATE,** *self-indulgent and counter-culture gossipy, does spell out the whole process of purchase, has a good section on refurbishing old houses. If you're buying only one book,* **FINDING AND BUYING YOUR PLACE IN THE COUNTRY** *covers the ground.*

Family farming has been declining for years, placing both the economy and Jefferson's idea of democracy in jeopardy. That's beginning to reverse. Two books dominate this area. **FARMING FOR SELF-SUFFICIENCY** *distills eighteen years of intelligent experience by a British couple:* **GROW IT** *is a thorough guide to the small-farm gamut — tillage, fertilizer, orchard, nuts, vegetables, pests, grain, forage, goats, chickens, pigs, bees, the larder, and other sources of information. Other worthies...* **HOMESTEADERS HANDBOOK** *has interesting information, rotten illustrations and style.* **HOMESTEADING** *is somewhat expensive but full of good tips. Ken Kern's* **THE OWNER-BUILT HOMESTEAD** *has some original ideas.* **CLOUDBURST,** *from Canada, has a nice assortment of instructions for compost-shredders, water wheels, cheese-making, solar-dyer, wood lathe, sauna, washing machines, etc. (A* **Cloudburst 2** *is forthcoming.) Anyone farming will need* **Organic Gardening and Farming** *($6.85/yr. monthly, Rodale Press, 33 East Minor St., Emmaus, Pa. 18049).*

Close to basics is not a bad place to live. It's hard work...

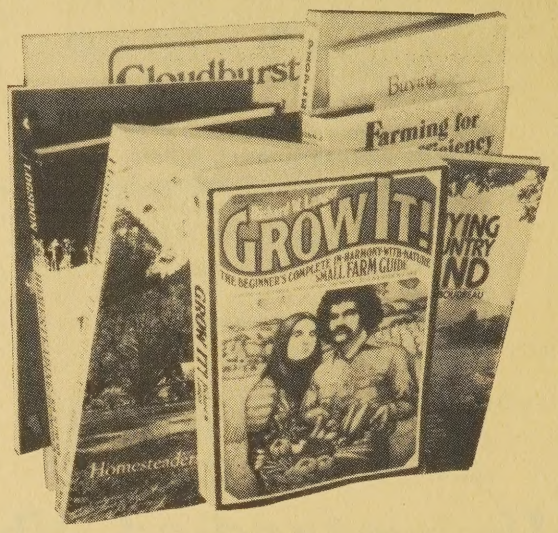
—SB

Buying Country Land
Eugene Boudreau
1973; 105pp.

$1.95 postpaid
from:
Macmillan Publishing Co., Inc.
Front and Brown Streets
Riverside, N.J. 08075

or W.E.T.S. or T. for L.

If you see an attractive piece of land but have no evidence that it is for sale, you can write to the owner and say that you are interested in buying. You can accomplish this by going to the County Assessor's office where there are maps that show all parcels of land in the county together with the names and addresses of the owners. The Assessor can also tell you the assessed value and the market value. Then, at the County Recorder's office you can find out something about the last purchase price by studying the transfer tax stamped on the deed.



Buying Country Property
Herbert R. Moral
1972; 119pp.

$1.75 postpaid
from:
Bantam Books, Inc.
666 Fifth Ave.
New York, N.Y.
10019

or W.E.T.S. or T. for L.

People's Guide to Country Real Estate
Jean & Jim Young
1973; 192pp.

$3.95 postpaid
from:
Praeger Publishers, Inc.
P.O. Box 1323
Springfield, Mass. 01101

or W.E.T.S. or T. for L.

Finding and Buying Your Place in the Country
Les Scher
1974; 368pp.

$4.95 postpaid
from:
Macmillan Publishing Co., Inc.
Front and Brown Streets
Riverside, N.J. 08075

or W.E.T.S. or T. for L.

Farming for Self-Sufficiency
(Independence on a 5-acre Farm)
John & Sally Seymour
1973; 250pp.

$7.50 postpaid
from:
Schocken Books Inc.
200 Madison Avenue
New York, N.Y. 10016

or W.E.T.S. or T. for L.

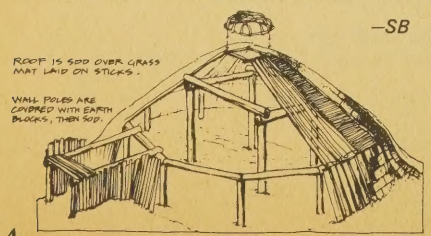
Pasture. Horses living out don't want very good fattening pasture. It is bad for them. The wider range of grazing they have the better, and they do not thrive on land where only horses are kept. They do far better running out either with, or after, cattle. A horse kept out all the time and worked occasionally and lightly is most unlikely to get ill. One worked hard and continuously must be stabled and fed 'high', and it takes a skilled horseman to keep him fit and working. You are being forced to keep him unnaturally, i.e. on food that is richer than his digestion was evolved to cope with.

Shelter

Shelter

In 1964 a book called **Architecture Without Architects** *started a revolution in thinking about building design and construction. This book completes the revolution. Editor Lloyd Kahn has built three of his own houses and worked on innumerable others. He used to edit the "Shelter" section of the* **Whole Earth Catalog.** *His books* **Domebook I** *and* **Domebook II** *encouraged the reader participation that led to this book, a quantum jump deeper into building essence and practice than the previous works. The use of photographs (by co-editor Bob Easton) could change bookmaking. I'd call it a Bible of grassroots design, of homemade home-making, and the measure now of how excellent a homemade book can be.*

—SB



Shelter
Lloyd Kahn, Bob Easton, eds.
1974; 176pp.

$6.00 postpaid
from:
Random House, Inc.
457 Hahn Rd.
Westminster, Md.
21157

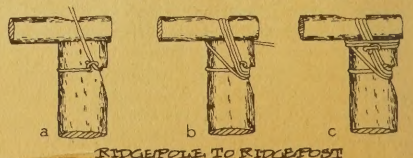
or W.E.T.S. or T. for L.

He looked upon us as sophisticated children — smart but not wise.

Saxton T. Pope (*said of Ishi*)

Metaphorically, our work on domes now appears to us to have been *smart*: mathematics, computers, new materials, plastics. Yet reevaluation of our actual building experiments, publications, and feedback from others leads us to emphasize that there continue to be many unsolved problems with dome homes. Difficulties in making the curved shapes livable, short lives of modern materials, and as-yet-unsolved detail and weatherproofing problems.

We now realize that there will be no wondrous new solution to housing, that our work, though perhaps smart, was by no means *wise*. In the past year, we have discovered that there is far more to learn from wisdom of the past: from structures shaped by imagination, not by mathematics, and built of materials appearing naturally on the earth, than from any further extension of whiteman technoplastic prowess.



RIDGEPOLE TO RIDGEPOST

Grow It
(The Beginner's Complete In-Harmony-with-Nature Small Farm Guide)
Richard W. Langer
1972; 365pp.

$3.95 postpaid
from:
Avon Books
250 West 55th St.
Order Dept., 8th Flr.
New York, N.Y.
10019

or W.E.T.S. or T. for L.

Homesteaders Handbook
(A Guide to Raising, Growing, Preparing and Preserving Foodstuffs)
Rich Israel, Reny Slay
1973; 319pp.

$3.50 postpaid
from:
Grace
Box 416
Keddie, Ca. 95952

or W.E.T.S. or T. for L.

Homesteading
(How to Find New Independence on the Land)
1973; 256pp.

$7.95 postpaid
from:
Rodale Books, Inc.
33 E. Minor Street
Emmaus, Pa. 18049

or W.E.T.S. or T. for L.

I like to use the ballpark figure of $25,000 as the cost of buying just an adequate country place.

Cloudburst
(A Handbook of Rural Skills and Technology)
Vic Marks, ed.
1973; 128pp.

$3.95 postpaid
from:
Cloudburst Press
Box 79
Brackendale, B.C.
Canada

or W.E.T.S. or T. for L.

The Organic Method Primer

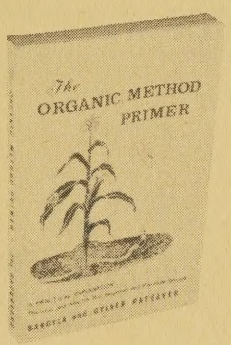
Within the organic gardening movement there are numerous schools of thought, and they are often contradictory. The advantage of **The Organic Method Primer** *is that the authors have made a compilation of the various beliefs and methods, and have added to them their own practical experience from years of teaching and gardening organically. You can learn what a BioDynamic farmer would do in a given situation, and then compare that with the advice of a mulch gardener. For its length, it is one of the most comprehensive gardening books I have read – relatively "far out" subjects like biomagnetics are covered, but there is also solid advice on what to look for when you buy a mechanical shredder. The section on organic pest control techniques is particularly complete; it would take a long time just to try all of the remedies that are described here.*

[Suggested and reviewed by Richard Nilsen]

The Organic Method Primer
Bargyla and Gylver Rateaver
1973; 257pp.

$6.50 postpaid

from:
Bargyla Rateaver
Pauma Valley, Calif.
92061



The Owner-Built Homestead
Ken Kern
1973; 114pp.

$5.00 postpaid
from:
Ken Kern Drafting
Sierra Route
Oakhurst, Ca. 93644

Putting Food By

Even a tiny garden can grow more than one family can immediately use. **Putting Food By** *is 360 pages of readable instructions on drying, freezing, canning, smoking and root cellar storage. The book is laid out with frequent topic headings and charts, making it handy for quick reference. Freezing is by far the easiest method, and feasible for nearly every type of food, even eggs. Sun-drying is ideal for fruit, except where it's humid; so there are instructions for making an indoor box dryer. With nearly two-thirds of every food dollar going to processing and marketing, it is easy to see that home processing saves money. This book, with suggestions on freezing TV dinners from leftovers and storing pre-cooked meals, even shows how it can save time.*

[Reviewed by Rosemary Menninger]

Putting Food By
Ruth Hertzberg, Beatrice Vaughan, and Janet Greene
1973; 360pp.

$3.95 postpaid

from:
The Stephen Greene Press
Brattleboro, Vt. 05301

or W.E.T.S. or T. for L.

Room-drying

By this method food is hung in a warm room—the kitchen or the attic—for the days required to dry the material. Old-timers would suspend racks of drying food above the big wood-burning range, finish off a flitch of beef near by, and festoon strings of apples or pumpkin rings near the ceiling. Herbs are still usually dried in attics or the kitchens of country houses, hung either in the open or in paper bags to protect them from dust.

In extremely dry areas it may be feasible to stack-dry certain fruits and vegetables indoors, following enough time in sun or dryer to get them better than halfway along. Stack the trays with 6 inches of space between them, open windows to allow a free circulation of air, and force a draft across the trays with an electric fan. Shift the trays end for end occasionally and turn the food to ensure even drying.

The Ecol Operation

A hell of a lot of original design and use of materials (asbestos super-tiles out of sewer pipes, sulphur lock-blocks, modular logs, etc.) went into this impressive project by students at McGill University, Toronto. This is the first home that I've seen which is more systemically designed than a travel trailer.

–SB

The Ecol Operation
(Ecology + Building + Common Sense)
1972; 100pp.

$4.00 postpaid
from:
Minimum Cost Housing Group
School of Architecture
McGill University
Montreal 101, Quebec, Canada

Some Ways of Building Ecologically.....

1. Building with renewable resources – such as timber or vegetable fibres – which do not consume the earth's stock of non-reusable materials.

2. Building with materials which would otherwise cause pollution when discarded as industrial waste; instead of burning or stockpiling sulphur wastes from oil, copper, zinc, refineries, etc., these could be used in construction.

3. Building with materials that can be re-cycled rather than discarded at the end of the building's life.

4. Using pollution-free wind energy to produce electricity.

5. Using the minimum of water resources for washing and cleaning, saving large amounts of water by fine-droplet spraying.

6. Putting to use the power of wind-produced electricity to extract water from the air by the phenomenon of condensation.

7. Using solar energy to purify polluted or sea-water.

8. Making use of the sun for cooking and heating water thus requiring no fuel.

9. Re-cycling water and separating it by function for (1) drinking and cooking, (2) hand washing and showering, and (3) toilet flushing, depending on the purity.

10. Using all available rainwater.

11. Not using the earth's permanent natural resources which have taken millions of years to accumulate and are rapidly being depleted by overuse.

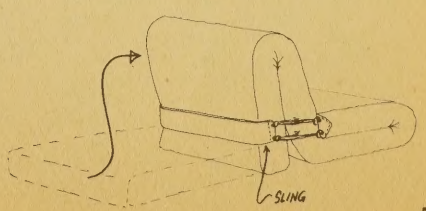
12. Avoiding waste by relating the size of all building components through modular coordination.

Nomadic Furniture

If you move your dwelling-stuff more than once every four years, this lightweight book can save you the aggravation of feeling so stupid while wrestling that heavy bed (couch, table, chest, bookshelf) down that narrow stairway to that overloaded car.

Nomadic Furniture *–SB*
James Hennessey and
Victor Papanek
1973; 149pp.

$3.95 postpaid
from:
Random House, Inc.
457 Hahn Rd.
Westminster, Md.
21157 or W.E.T.S. or T. for L.



Soft Technology

Alternate Sources of Energy

Welcome to the panacea department: there is no such thing as a panacea. Solar collectors, windmills, wind-generators, biosphere houses, waterwheels, methane: Relax and accept some trade-offs — higher independence: higher cost: more work: lower power: lower convenience: higher gut-satisfaction: better balance with environment.

The best general source of information is not the National Science Foundation or Honeywell or any of the multi-million dollar agencies newly active. It's a scruffy newsprint bi-monthly published in Milaca, Minnesota, called **Alternative Sources of Energy**. *Short on pompous theory, it's long on practice, originality, and range of inquiry. Sun-burned, wind-burned information here.*

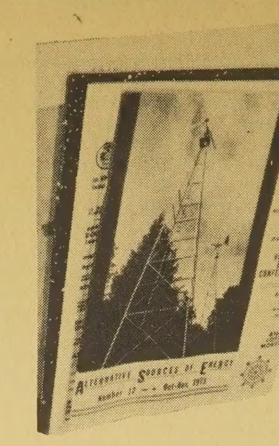
The British equivalent of **ASE** *is* **Undercurrents** *"a magazine of radical science and peoples' technology". More political/theoretical, good anyway. Also in England,* **Low Impact Technology** *has the first mini-catalog of soft-tech goodies you can buy. (Suggested by Jim Harding.)*

Since Harold Bates' famous chickenshit-powered car surfaced in England, methane gas generation and utilization has come a long way. The state-of-the-art for handmade is in **Methane Digesters for Fuel Gas and Fertilizer** *from the New Alchemists. The Alkies also have a first-rate* **Journal of the New Alchemists** *with far the best backyard aquaculture (covered fishponds turn sunlight into fish protein) and other biological ideas in addition to their own wind/solar research. More on them in the back of this 'Wraparound."*

Solar. Not many products available here yet. Bruce Kelly of the Energy Institute tells us that best solar cells (sunlight to electricity) are from **Solar Power Corporation** *with a unit costing somewhat over $30 in quantity, delivering 1.5 watts — not bad for trickle-charging batteries in remote situations. He also recommends the* **Fafco Solar Swimming Pool Heater**. *A good survey of new solar ideas and equipment is the (expensive)* **Solar Energy Digest**.

The most ingenious solar device around is Steve Baer's **Skylid**, *which opens and closes according to whether the room needs warmth and sunlight is available — a brutally simple sunvalve with its own sensing intelligence and power source.*

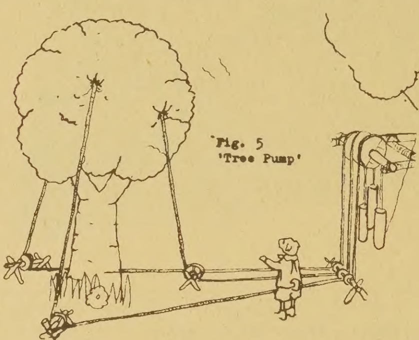
—SB



Alternative Sources of Energy
Eugene & Sandy Eccli, eds.

$5/yr. bi-monthly

from:
Alternative Sources of Energy
Route 2 Box 90A
Milaca, Minnesota 56353



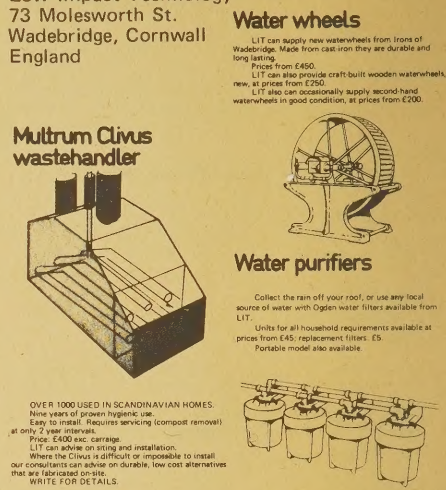
David Stabb's 'treepump' (Fig. 5) is an ingenious way of utilising an existing tall tree. In this system, the three cables are attached to the tree top and taken down via pulleys to ratchet cable-drive drums. Whichever direction the wind blows, at least two of the cables move, thus doing potentially useful work e.g. water pumping.

The term "soft technology" was coined amid the British counter-culture in 1970. Technology which is soft is gentle on its surroundings, responds to it, incorporates it, feeds it. A nuclear power-generating station doesn't qualify. A wooden windmill with cloth sails grinding local grain does.

—SB

Low Impact Technology
Catalog **$1** postpaid

from:
Low Impact Technology
73 Molesworth St.
Wadebridge, Cornwall
England


Water wheels

LIT can supply new waterwheels from Irons of Wadebridge. Made from cast-iron they are durable and long lasting.
Prices from £450.
LIT can also provide craft-built wooden waterwheels, new, at prices from £250.
LIT also can occasionally supply second-hand waterwheels in good condition, at prices from £200.

Multrum Clivus wastehandler

OVER 1000 USED IN SCANDINAVIAN HOMES.
Nine years of proven hygienic use.
Easy to install. Requires servicing (compost removal) at only 2 year intervals.
Price: £400 exc. carraige.
LIT can advise on siting and installation.
Where the Clivus is difficult or impossible to install our consultants can advise on durable, low cost alternatives that are fabricated on-site.
WRITE FOR DETAILS.

Water purifiers

Collect the rain off your roof, or use any local source of water with Ogden water filters available from LIT.
Units for all household requirements available at prices from £45; replacement filters £5.
Portable model also available.

Undercurrents

$4.50/yr. bi-monthly

from:
Undercurrents
275 Finchley Rd.
London NW3 .
England

Craft

The Sensuous Gadgeteer

This is a truly useful book for those who make things or who would like to be able to make things. After years of being a professional thing-maker I find much I didn't know here. Better, it's a good reference in case you need to solder something but have forgotten how, for instance. But best of all the book is written in a simple, friendly way so that the Mysteries of the Shop are Revealed about as much as they can be short of lousing up some material practicing. Virtually all common shop practices are shown, explained, and illustrated. Many of the basic principles involved in various shop tactics are explained so that you learn in depth. My only regrets arise from a basic philosophy he holds: "Overbuild everything". This is how a lot of American Waste gets generated, as that attitude tends to discourage sharp thought. Kathleen tells me that the book is subtly aimed too exclusively at men only, but that it is so encouraging to the inexperienced, she is recommending that MS. magazine review it. Bill Abler wants you to be able to make things as easily as he does. With this book and a few brains, you probably can.

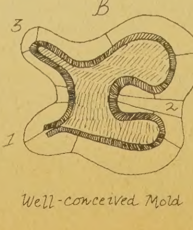
[Reviewed by J. Baldwin]

The Sensuous Gadgeteer
(Bringing Tools and Materials to Life)
Bill Abler
1973, 113pp.

$3.95 postpaid

from:
Running Press
38 South 19th Street
Philadelphia, Pa. 19103

or W.E.T.S. or T. for L.

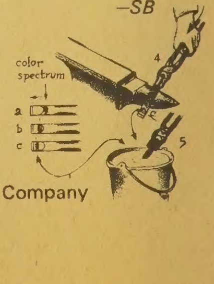


Well-conceived Mold

The Making of Tools

Using tools to make tools is as high a craft and calling as they come. Get your forge, anvil, drillpress, and this wellmade book. Start with screwdrivers. Work up to shears.

—SB



The Making of Tools
Alexander G. Weygers
1973; 93pp.

$4.95 postpaid

from:
Van Nostrand Reinhold Company
300 Pike St.
Cincinnati, Ohio 45202

or W.E.T.S. or T. for L.

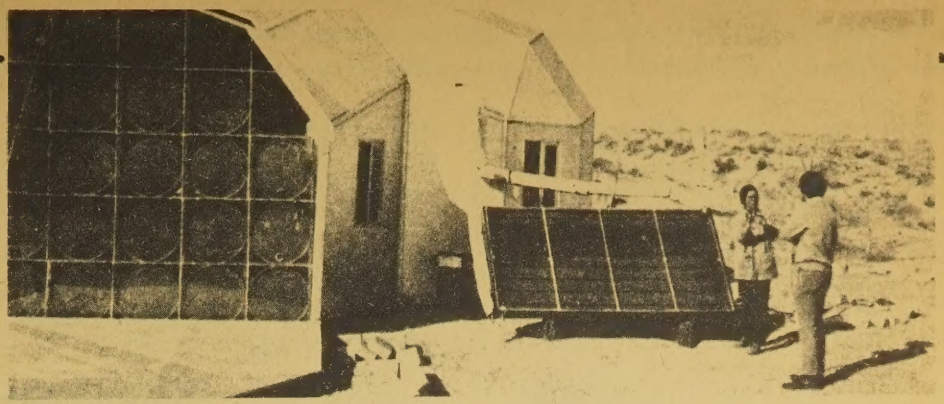
Once a student has learned to make his own tools, he will be forever independent of having to buy those not specifically designed for his purpose.

Journal of the New Alchemists

$25.00 for Associate Membership

from:
The New Alchemy Institute
Box 432
Woods Hole, Mass. 02543

Fig. 1 Habitat and feeding niches of the principal species in classical Chinese carp culture. (1) Grass carp (*Ctenopharyngodon idellus*) feeding on vegetable tops. (2) Big head (*Aristichtys nobilis*) feeding on zooplankton in midwater. (3) Silver carp (*Hypophthalmichtys molitrix*) feeding on phytoplankton in midwater. (4) Mud carp (*Cirrhinus molitorella*) feeding on benthic animals and detritus, including grass carp feces. (5) Common carp (*Cyprinus carpio*) feeding on benthic animals and detritus, including grass carp feces. (6) Black carp (*Mylopharyngodon piceus*) feeding on mollusks.



Zomeworks solar collectors heating home space (left) and shower water (right).

Methane Digesters

L. John Fry, Richard Merrill
1973; 46pp.

$3.00 postpaid

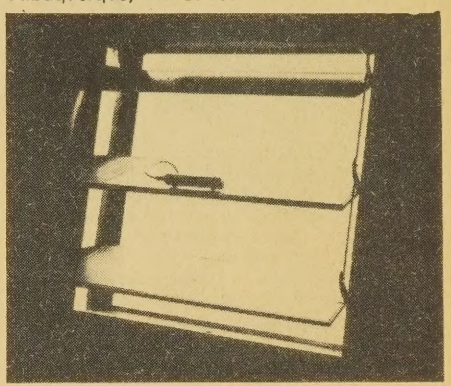
from:
The New Alchemy Institute-West
15 West Anapamu St.
Santa Barbara, Ca. 93101

General: Methane can of course be used in any appliance or utility that uses natural gas. The natural gas requirements of an average person with a U.S. standard of living is about 60 $ft.^3$/ day. This is equivalent to 10 lbs of chicken or pig manure per day (7 pigs and 100 chickens) or 20 lbs of horse manure (about 2 horses).

Skylid

4'x10' **$160** or made-to-order
Information free

from:
Zomeworks Corporation
Box 711
Albuquerque, NM 87103



Solar Energy Digest

William Edmondson, editor

$27.50/yr. monthly

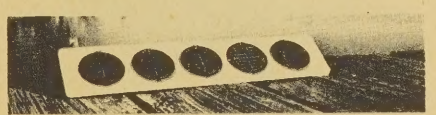
from:
Solar Energy Digest
Box 17776
San Diego, Ca. 92117

The Beasley Solapak Hot Water Heaters, which we talked about importing from Australia into the United States in the September 1973 issue of SED, can now be ordered in quantities as low as one SOLAPAK, which will heat 10 gallons of water on a sunny day.

Solar Power Corporation

$30-50
Solar cell information free

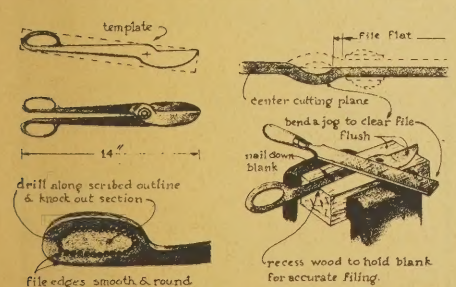
from:
Solar Power Corporation
186 Forbes Road
Braintree, Mass. 02184



Fafco Solar Swimming Pool Heater

$700-1,000
Information free

from:
Fafco Incorporated
2860 Spring St.
Redwood City, Ca.
94063



Most tools are made of high-carbon steel. This is *temperable* steel. It can be bought cheaply at steel scrapyards and automobile junkyards. And, once you develop an eye for it, great amounts are found strewn along highways and in vacant lots to add to your own scrap pile. No matter how beat-up or rusty a piece of discarded scrap may be, add it to your supply. Scrap is cheap, and as rusty, corroded surfaces are usually only skin-deep, they can easily be ground clean.

The Complete Encyclopedia of Needlework

At last! France's needlework "bible" is in paperback! In large format, and for only $4.95! Believe the title; it has it all, carefully written, with clear precise diagramming and instructions even to needle size, thread weight, and how to modify designs. It's old-fashioned and pretty and it works.

[Reviewed by Diana Sloat]

The Complete Encyclopedia of Needlework

Th. de Dillmont
1972, 787pp.

$5.20 postpaid

from:
The Running Press
38 South 19th Street
Philadelphia, Pa. 19103

or W.E.T.S. or T. for L.

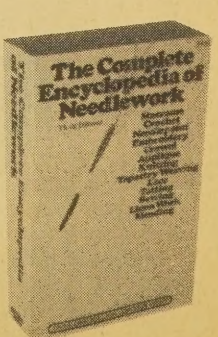
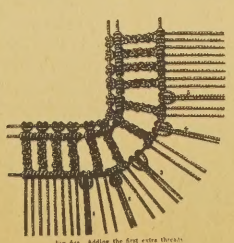


Fig. 632. Shell stitch.

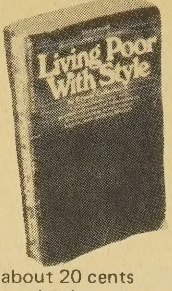


Community

Living Poor With Style

Whatever else the Energy Crisis may mean, one thing is certain, prices of everything will continue to rise. When the economy is berserk the sane citizen will participate minimally. For city dwellers this is the best book on acquiring that skill. Living Poor and Living with Style are far from a contradiction in terms – both consist of a loving (slightly detached) attention to detail. Here are 600 pages of intelligent detail for $1.95.

–SB



Living Poor With Style
Ernest Callenbach
1972; 600pp.

$1.95 postpaid

from:
Bantam Books, Inc.
666 Fifth Avenue
New York, N.Y. 10019

or W.E.T.S. and T. for L.

Low-cost paper napkins are about 20 cents for a package of eighty. (The only cheaper ones are restaurant packages of five hundred.) That means the cost per napkin is about 1/4 cent. If you have four people at table, that comes to about 1 cent per meal, 3 cents per day, 21 cents per week.

Now you're in a position to figure a comparative cost. If the cloth napkins last a year and cost 50 cents each, their average cost per week is about 1 cent each, or 4 cents per week for your family of four. The washing adds another 4 cents per week, so your total cloth-napkin costs are 8 cents per week.

Now you know why grandma, who isn't so dumb and doesn't have any spare cash to speak of, uses cloth napkins.

Old Glory

Your town has origins. This is a splendid book about how to find and preserve and parade them. There is such a thing as cultural good ecology. Savor your own peculiar community's wierdness. Savor some other people's.

–SB

Old Glory
(A pictorial report on the Grass Roots History Movement and The First Hometown History Primer)
James Robertson, ed.
1973; 191pp.

$4.95 postpaid

from:
Warner Paperback Library
75 Rockefeller Plaza
New York, N.Y. 10019

or W.E.T.S. or T. for L.

Arlington, Massachusetts The Last Picture Frame – Almost
"My God, you know what you have to do when you save a mill? You have to run it!"

Weare, New Hampshire
Huntington Beach, California
Hoosick Falls, New York Telling It Like It Was
"The only reason why the 'Boston Tea Party' is better known than the Pine Tree Riot is because they had better press agents."

Tassajara Cooking

The Tassajara Bread Book *showed what else goes into outstanding bread besides flour. Now Ed Brown and the Tassajara Zen Center are back to show us the rest of the kitchen. These ascetic Bay Area Zennies continually smite my secularity with the best cooking I've ever eaten. Some asceticism. They cook a good cookbook too.*

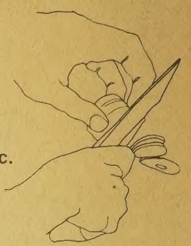
–SB

Tassajara Cooking
Edward Espe Brown
1973; 242pp.

$3.95 postpaid

from:
Shambhala Publications, Inc.
1409 Fifth Street
Berkeley, California 94710

or W.E.T.S. or T. for L.



About guiding the knife: Keep your right hand dumb. It's just going to cut cut cut, always guided by the last knuckle of the middle finger of the left hand. Either the left hand walks back along the vegetable, the knife following, moving over just as far as the retreating knuckle, or the left hand inches the vegetable forward, maintaining its own position.

Knox County, Kentucky Fight Like Hell for the Living
"Hit's a sin to burn sass'frass wood. If'n you do, the devil will sit on the roof o'yer house.

Nomadics

Explorers Ltd. Source Book

Al Perrin's **Source Book** *completely obsoletes the "Nomadics" section of* **The Last Whole Earth Catalog.** *Far better research, information design, reviewing, and layout – quantity and quality. Each of 26 sections begins with an incisive general introduction followed by detailed evaluations of publications, organizations, schools and all manner of equipment and suppliers. I'm humiliated and delighted. I use the damn book all the time.*

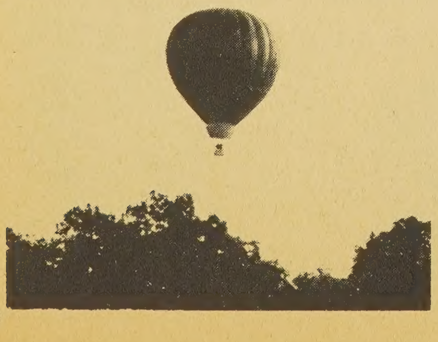
–SB

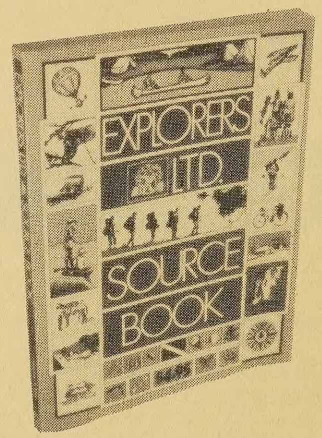
The Explorers Ltd. Source Book
Alwyn T. Perrin, ed.
1973; 384pp.

$4.95 postpaid

from:
Harper & Row, Publishers
Keystone Industrial Park
Scranton, Pa. 18512

or W.E.T.S. or T. for L.

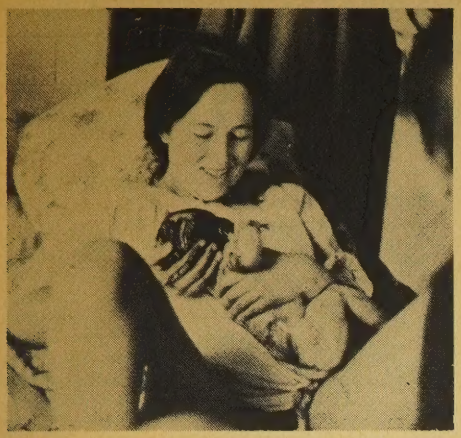




American Caving Illustrated
J. Welborn Story
1965 - 302 p. il. - $4.00

Written by a caver with input from practicing spelunkers all across the country, this is one book that touches on just about every practical aspect of caving. It starts with a general discussion of caving – underground navigation, safety, conservation, and so forth – then goes on to cover equipment, food and cooking, camping, geology of caves, cave climbing (seven chapters devoted to this), first aid, rescue, cave diving, speleophotography (including underwater cave photography), surveying, and finishing up with a chapter of caving vernacular and humor, including instructions for making wine (???). To give an example of how thorough the book is, the chapter on food and cooking includes charts that give the number of calories expended for specific activities involved in a cave expedition, so that necessary food and nourishment required can be computed in advance. The chapter on camping includes instruction in survival. A glossary gives definitions of caving terms, and a supplement includes sample legal release forms (for cave owners), cave field report form, and suggested reading list. This isn't a slick trade publication; some of the printing isn't sharp and not all the photographs reproduced well. But the wealth of information more than compensates for any graphic shortcomings. Besides, it makes the book seem very fresh and honest.

From: J. Welborn Storey, P.O. Box 38051, Capitol Hill Station, Atlanta, Ga. 30334



The Birth Book

The Birth Book *is a graphic and factual account of 12 natural home deliveries, midwifed by Raven and recorded by a group of young parents living in the Santa Cruz hills that were dedicated to letting natural acts happen naturally. The photographs and text fairly ripple with the incredible vitality that is created and experienced at each birth event. Training and discussion are available on delivery, pre-natal care, exercises, diet and counsel against taking unnecessary risks when home delivery may seem contraindicated. The Birth Center has had the sympathetic and verbal consultation of several local physicians, but the AMA bias being what it is, no practicing obstetrician has felt able to risk professional and financial security to work in conjunction with midwife training and home deliveries. Our five year old daughter finds this splendid family reading.*

[Suggested and reviewed by Lois Cammack Bateson]

The New Woman's Survival Catalog

The Catalog succeeds in guaranteeing survival to any woman teetering on the brink of alternatives – and provides some next steps if the answer isn't already here. This edition should elicit lots of feedback insuring future editions of more than the obvious sources listed. One boo!: I would have hoped the ladies could have turned out something more than another in a long line of **Last Whole Earth Catalog** *imitations, down to graphics and print type (albeit better than most of the imitations flooding the market).*

One yay!: The editors have established a trust fund to return a minimum of 20% of their royalties to the Women's Movement.

[Reviewed by Carole Levine]

The New Woman's Survival Catalog
Kirsten Grimstad and Susan Rennie, eds.
1973; 223 pps.

$5 postpaid

from:
Coward McCann & Geoghegan, Inc.
Berkeley Publishing Corp.
200 Madison Ave.
New York, N.Y. 10016

or W.E.T.S. or T. for L.

The Birth Book
Raven Lang
1972; 160pp.

$6.00 postpaid

from:
Genesis Press
P.O. Box 877
Ben Lomond, Ca. 95005

or W.E.T.S. or T. for L.

HOW TO START A RAPE CRISIS CENTER

Available from:
The Rape Center
Women
P.O. Box 21055
Kalorama St. Station
Washington, D.C.
20009
$1.50 plus 20 cents postage

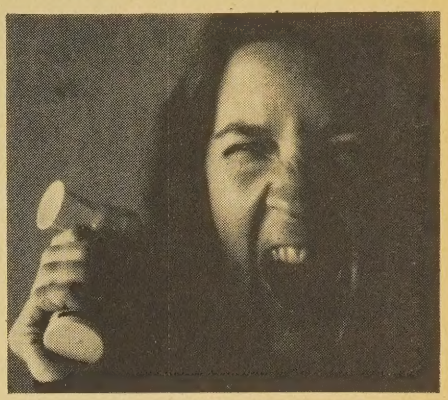
Pocket Horn

No mugger can keep his mind on business while his eardrums are being torn by this 118 decibel shriek. If there's help (or curiosity) around, it'll come. Tiny, cheap, effective device. (Robert Mitchum it was who suggested this item, in the course of a **Rolling Stone** *interview.)*

Pocket Horn *–SB*

$3.25 postpaid

from:
Edmund Scientific Co.
300 Edscorp Bldg.
Barrington, N.J. 08007



COUNTRY WOMEN

For subscriptions, write to: Country Women, P.O. Box 51, Albion, Ca. 95410; $7.00/12 issues; single issues/60 cents; bulk rates and consignment sales to stores.

Automotive Operation and Maintenance

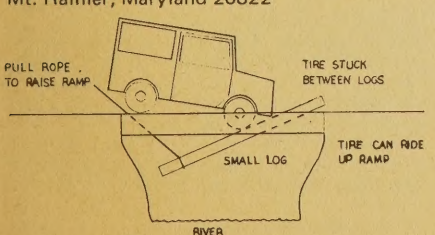
An experienced list of disasters that can befall you and your vehicle when you're on your own in the jungle, bush or boonies, and solutions that require only rudimentary skills and primitive resources. This manual should be tucked under your seat before you drive beyond hiking distance from automotive civilization.

–AF

Automotive Operation and Maintenance
E. Christopher Cone
1973; 200pp.

$4.00 postpaid

from:
Volunteers in Technical Assistance
3706 Rhode Island Ave.
Mt. Rainier, Maryland 20822



Emergency Bridge Repair

NO GAS due to a clogged line or broken pump can be overcome through the use of gravity. Put a small can of gas on the roof of the car and siphon gas down to the carburetor. Disconnect the fuel line to the carburetor and replace it with the hose from the elevated tank. The car will run until the tank is empty.

The Great Escape

Whether it's prosperity or unemployment, more leisure is coming our way. This access-book broadens the options. Subject areas are Mind & Body, Senses, Air, Water, Land, Nomadics, Places, Machines, Work, Games.

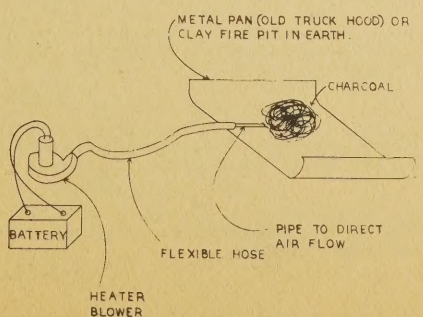
–SB [Suggested by Beth Fairbanks]

The Great Escape
(A Whole Life Catalog of Leisure)
Min Yee, ed.
1974;256pp.

$6.00 postpaid

from:
Bantam Books, Inc.
666 Fifth Ave.
New York, N.Y. 10019

or W.E.T.S. or T. for L.



Homemade Forge

"Never chain your bike to anything you don't want stolen." Let us know if you've found an ideal security device that weighs less than your bicycle.

–AF

Windsurfer

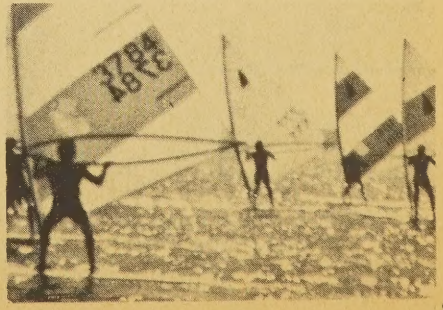
Stand up on a surfboard and sail. The concept was first developed at Rand Corporation and printed up with the Clearinghouse for Federal Scientific and Technical Information (See **Whole Earth Catalog**, *p. 130). The board is 12 feet long, fully-rigged only 60 lbs. Plan to get wet and strong.*

–SB

Windsurfer

$415.00

from:
Windsurfing International, Inc.
1808 Stanford Ave.
Santa Monica, Ca. 90404



Communications

Origins

Once you start watching what you are saying you begin to learn what else you are saying. Those words all have lives of their own, their own bizarre pasts and kinships and contained other usages. Find in this classic the meaning behind your meaning.

–SB [Suggested by Scott Beach]

Origins
(A Short Etymological Dictionary of Modern English)
Eric Partridge
1958, 1962; 970pp.

$18 postpaid
from:
Macmillan Publishing Co., Inc.
Front and Brown Streets
Riverside, N.J. 08075

or W.E.T.S. or T. for L.

whole, whence **wholly**—cf **whole cloth (out of)**, **wholemeal, wholesale, wholesome; hail**, v, and **hale**, adj; **heal** (whence **healer** and pa, vn **healing**)—**health**, whence **healthful, healthless** (obsol), **healthy** (whence **healthiness**).

1. The n *whole* derives from the adj *whole*, ME *hole* (*hoole*), earlier *hale*, OE *hāl*, sound (complete), healthy: cf OFris *hēl*, OS *hēl*, OHG-MHG-G *heil*, Go *hails*, MD *hiel*, MD-D *heel*, ON *heill*, syn OSl *cělŭ*, OP *kail*ustikan, health, Gr *koilu*, the beautiful (prop, neu adj). The OGmc etym is **khailaz*; the IE, **koilos*; the IE r, **kail-*, **koil-*.

2. From *whole cloth*, a (large) uncut piece of cloth, derives (of a story, a lie) 'made *out of whole cloth*'—a sheer fabrication; *whole meal* = *meal* (grain coarsely ground) of *entire*-wheat; *wholesale*, goods sold in large quantities, hence the corresp adj, whence the sense 'both extensive and undiscriminating or indiscriminate'. *Wholesome* is much older; it derives from ME *holsum*, itself perh from ON *heilsamr*—cf MD *heilsam*, D *heilzaam*, G *heilsam*.

3. From ON *heill*, sound, healthy, comes ME *heil*, *hail*, used in greeting (cf *wassail*), whence ME *heilen*, *hailen*, to greet, whence 'to *hail*' or greet. With *Hail!*, cf G *Heil!* and Go *Hails!*: for 'Be *hail*' or well, 'Long Life!' But from E *hāl*, sound, healthy, comes ME *hal*, later *hale*, retained by E.

4. Akin to OE *hāl*, healthy, is OE *hāēlan*, ME *haelen*, *helen*, E 'to *heal*': cf the syn OFris *hēla* and OS *hēlian*, and OHG *heilēn*, to become, also to make, well, MHG-G *heilen*, to cure, Go *hailjan*, MD *heilen*, *hielen*, *helen*, MD-D *heelen*.

5. OE *hāl*, well, has derivative *hāēlth* (abstract suffix *-th*)—ME *helthe*—E *health*.

Synergy Access

There've been a quantity of youth-tech access-to-access publications in the last few years. This is the best of the lot.

–SB

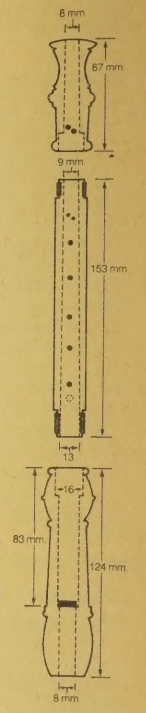
Synergy Access
(A Global Newsletter on Futuristic Communications, Media & Networking)
Wes Thomas, ed.

$5/yr. bimonthly
from:
Twenty-First Century Media, Inc.
606 Fifth Ave.
East Northport, N.Y. 11731

The Amateur Wind Instrument Maker

Robinson has put together an excellent guide, both for craftsmen and for musicians. The book includes lucid descriptions of the materials and methods for making a number of wind instruments, and includes detailed plans for making flutes, recorders, oboes, shawms, trumpets, and many others. This is not a handbook for whittling hobbyists, but a how-to-do-it manual for serious craftsmen.

[Reviewed by Scott Beach]



The Amateur Wind Instrument Maker
Trevor Robinson
1973; 115pp.

$8.95 postpaid
from:
University of Massachusetts Press
505 East Pleasant Street
Amherst, Mass. 01002

or W.E.T.S. or T. for L.

The Publish-it Yourself Handbook

New York is not Publishing. Your home and some work can be. Here are some recent experiences, home-published of course.

–SB

The Publish-it-Yourself Handbook
(Literary Tradition & How-to)
Bill Henderson, ed.
1973; 362pp.

$4.00 postpaid

from:
The Pushcart Book Press
Box 845
Yonkers, N.Y. 10701

or W.E.T.S. or T. for L.

The Bread Game

If you're raising money from foundations, this blunt little book is indispensable. I've been on both sides of the breadline enough to cherish its succinct candor in the bullfart atmosphere of granting.

–SB

The Bread Game
(The Realities of Foundation Fundraising)
1973; 88pp.

$2.30 postpaid
from:
Glide Publications
330 Ellis Street
San Francisco, Ca.
94102

or W.E.T.S. or T. for L.

Learning

A Treasury of Traditional Wisdom

Mystical insights, once they're rendered back into language, come in passionate outbursts of song, in abstract-seeming formulations, in poignant paradoxes, in telegraphic instructions – in dollops. This astounding collection – 1144 pages, 180,000 quotations, well chosen, organized, cross-referenced, indexed, and bibliographed, for 15 measley dollars – undermines a world of ecumenicism with THE GOODS: the harshest statements at the far end of every mystical tradition and literature Earth has. They converge alright, but not without work of your own.

–SB [Suggested by George de Alth]

A Treasury of Traditional Wisdom
Whitall N. Perry, ed.
1971; 1144pp.

$15.00 postpaid
from:
Simon and Schuster
One W. 39th St.
New York, N.Y.
10018

or W.E.T.S. or T. for L.

Image worship is very necessary for beginners.
Swami Sivananda

•

When you wake up you will find that this whole world, above and below, is nothing other than a regarding of oneself.
Hakuin

•

This man is known by five signs. First, he never complains. Next, he never makes excuses; when accused, he leaves the facts to vindicate him. Thirdly, there is nothing he wants in earth or heaven but what God wills himself. Fourthly, he is not moved in time. Fifthly, he is never rejoiced: he is joy itself.
Eckhart

•

(A Sufi) was asked: 'Who is a Sufi?' He replied: 'He who neither possesses nor is possessed.'
Al-Kalabadi

•

The man who possesses a knowledge of God, will not be very ambitious.
Sextus the Pythagorean

•

Jesus said: Blessed is he who was before he came into being.
The Gospel according to Thomas, log. 19

Good Earth Almanac

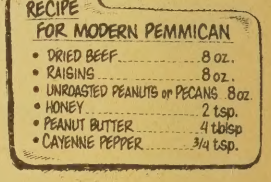
Sunday-funnies-style presentation of natural living projects for kids. Cheap, adventuresome, and they work. Wild food, gardening, camp cooking, candle-making, bird-feeding, food-drying, weather, and ethics.

-SB

Good Earth Almanac
Mark Gregory
1971, 1973; 111 pp.

$3.95 postpaid

from:
Grosset & Dunlap
51 Madison Ave.
New York, N.Y.
10010



or W.E.T.S. or T. for L.

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So sensible you wonder what's taken it so long to reappear. A system of apprenticeship, internship, to an international guild of tutors. For a period of time like eight months you live near and work with a master the likes of Anais Nin, John Whitney (filmaker), Buckminster Fuller, Jan Myrdal, Kenneth Rexroth, Yehudi Menuhin, Page Smith, or Ivan Illich. Eight months tuition is $2,624.

–SB [Suggested by Gregory Bateson]

Independent Study Program

Information free
from:
International Community College
1019 Gayley Ave.
Westwood Village
Los Angeles, Ca. 90024

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The CoEvolution Quarterly

Supplement to the Whole Earth Catalog

"COEVOLUTION"

The term was introduced in 1965 by Paul Ehrlich and Peter Raven in their study of the predator-prey relationship of caterpillars and plants. They found that the eaters and the eaten progressively evolved in close response to each other — coevolved. (Some plants developed defensive alkaloid poisons. Some caterpillars acquired a taste for alkaloids. The plants diversified wildly. The caterpillars diversified with them. What evolved really was the relationship, stably dynamic, unpredictable and sure.)

It seems that all evolution is coevolution. The beauty of the term is what it adds to the concepts of ecology. Language such as "preserving the ecology" suggests something quite perfect — static, knowable, oriented backward, unwelcoming to human foolishness...unreal. Ecology is whole system alright, but coevolution is whole system in TIME. The health of it is forward — a systemic self-education which feeds on constant imperfection. We coevolving watchers and meddlers are not left out of it.

Ecology maintains. Coevolution learns.

A COEVOLUTIONARY GAME: Who's Got the Cardiac Glycoside?

For chemical defense against predators, plants of the Milkweed family learned to synthesize a potent poison, the cardiac glycosides. The Monarch butterfly caterpillar learned to relish this alkaloid. The adult Monarch, full of cardiac glycosides, tasted terrible to his predators, the birds. The nice-tasting Viceroy butterfly learned to mimic the orange-and-black appearance of the Monarch so birds would leave him alone too. The birds, presumably, learned to distinguish more acutely between the real and bogus Monarchs. And the Milkweeds, meanwhile, learned to vary the combinations of alkaloids in individual plants so that caterpillars adapted to one plant could not feed on another. So long as everyone gets some victory and some defeat, the game never stops.

The CQ

We always used to have the most fun with the "Supplement" to the Whole Earth Catalog. We would bandy about half-baked research, personal enthusiasms, new layout ideas, correspondence from readers, ideological arguments, news and speculation, burps and farts and occasional song. We plan to do that again.

In addition **The COEVOLUTION Quarterly** *will focus on what has been called The Energy Crisis, our deepening encounter with, sure enough, the Limits To Growth. We'll work mainly on these areas:*

1)Short-term Forecasting — secondary shortages, threatened jobs, converging effects, etc;

2) Home Remedies — from personal to County-scale;

3) Understanding Wholesome — reprinting and initiating coevolutionary papers in cybernetics, ecology/economics, religion, self-anthropology, language, and whatnot.

Plus ongoing access-to-tools. The **Quarterly** *will appear approximately in March, June, September, and December. On editorial matters write to:* The CQ, Box 428, Sausalito, Ca. 94965. *For subscriptions ($6/yr) write:* The CQ, 558 Santa Cruz, Menlo Park, Ca. 94025.

—SB

Review of
C. J. Jung's
Septem Sermones ad Mortuos

by Gregory Bateson

This tiny book is for me the greatest achievement of Jung's life — the turning point in a long battle. He clearly recognises in **Memories, Dreams, Reflections** *that the days (in 1916) in which it was written were the beginning of all his later insights.*

At that time he was coming out of a long period of slow recovery from the influence of Freud and from the break with Freud. It was the moment for a new (or return to a very old) natural history of Man-God-Cosmos.

The book is difficult to read. It is (of course) a sort of poetry, and therefore almost impossible to be reviewed and analysed in prose. And Jung's views clearly changed as he wrote, even in the three or four days of the writing. He was in a state of transition.

> Man is a gateway, through which from the outer world of gods, daemons, and souls ye [the Dead]shall pass into the inner world; out of the greater into the smaller world. Small and transitory is man...At immeasurable distance standeth one single Star in the zenith.

The book then both is a progress from macrocosm to microcosm and is a description of the landscape at various stages of that progress.

It is not clear (does not matter) who is the novice and who the initiator in this strange catechism. Not only Jung but also the Dead are in transition. They came "back from Jerusalem, where they found not what they sought."

From his state of transition, Jung sees three concepts to which he gives the Gnostic names: Pleroma, Creatura and Abraxas. There is also — man.

Abraxas is approximately Shiva, the ultimate Creator-Destroyer. The most terrible and most beautiful of all the gods that man contains within his microcosmic self and that in turn is contained in the macrocosm. Within Abraxas, the more familiar figures (Helios, the Sun; and the Devil, darkness) are subsumed. But it is Abraxas that gets the poetry.

> It is splendid as a lion in the instant he striketh down his victim.
>
> It is beautiful as a day in Spring.
>
> . . . . . .
>
> To look upon it, is blindness.
>
> To know it, is sickness.
>
> To worship it, is death.
>
> To fear it, is wisdom.
>
> To resist it not, is redemption.

All this is within creatura, the realm where differences, distinctions, and ideas hold sway. The ground out of which creatura looms as figure (in the language of Gestalt theory) is pleroma — the totally unconceived and unstructured realm about which nothing can be said or thought because to say anything is to create distinction. Call it "void" or "fulness", it is still older and deeper than that first distinction by which creatura comes into recognition and therefore being.

The book is exasperating, profound and beautiful.

•

Jung's "Seven Sermons to the Dead" was privately printed in 1925 and circulated with no mention of its author. It is not to be found in the **Collected Works.** *Recent editions of* **Memories, Dreams, Reflections** *($2.95, Random House) carry it as Appendix V. The translation is by Cary F. Baynes, translator of Wilhelm's* **I Ching.**

Gregory Bateson, anthropologist, cybernetician, biologist, originated the Double Bind theory of schizophrenia.

—SB

The Whole Earth Publishing Empire

Is not. But the scattering of resources after the **Last Catalog** *did lead to an odd and numerous cousinhood of publications. Some are negligible; some are excellent, as follows.*

The first to appear was a quarterly called **PLACE**, *now well established and distributed by Random House. Conceived by Whole Earth editor J.D. Smith, run by Whole Earth staffers Dudley & Barbara DeZonia,* **PLACE** *is a National Geographic of the heart, vernacular journalism, avenue for much of the best writing and creative photography around. $8/yr. from PLACE, Walnut Grove, California 95690.*

While **Place** *got the* **Catalog** *type fonts, Ken Kesey bought our Polaroid copy camera, light tables, and layout gear to start a periodical named (during a poker game)* **SPIT IN THE OCEAN**. *The first issue on the theme "Old in the Streets" is just out, including the beginning of a new novel by Kesey. The issue is $1 by mail ($2 in bookstores), and 7-issue subscriptions are $5 from: SITO, Box 477, Rt. 8, Pleasant Hill, Oregon, 97401.*

Richard Raymond, head of Portola Institute, which was home for the Whole Earth Catalog, has started a "journal of right livelihood and caring-based economics", the **BRIARPATCH REVIEW**, *edited by Whole Earthers Gurney Norman ("Divine Right's Trip") and Robb Gilmer. Each issue costs $1 from 558 Santa Cruz Ave., Menlo Park, California 94025.*

Money from the **Last Catalog** *— over $1 million — went into a foundation called POINT, which proceeded to fund local goodworks. The President of POINT, an original named Mike Phillips, also handles money for Glide Foundation and used to vice-president a bank. His book on POINT and "free money",* **THE SEVEN LAWS OF MONEY**, *is just completed. $3.95 from Random House, 457 Hahn Rd., Westminster, Md. 21157. or W.E.T.S. or T. for L. The Laws:*

I. Do It! Money Will Come When You Are Doing The Right Thing.

II. Money Has Its Own Rules: Records, Budgets, Saving, Borrowing.

III. Money Is A Dream: A Fantasy As Alluring As The Pied Piper.

IV. Money Is A Nightmare: In Jail, Robbery, Fear of Poverty.

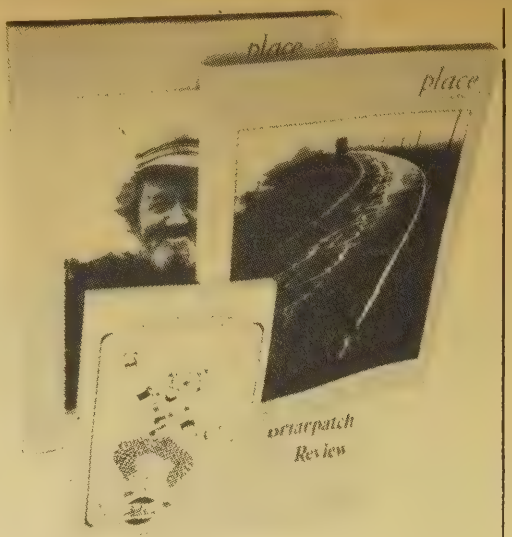
V. You Can Never Really Give Money Away.

VI. You Can Never Really Receive Money As A Gift.

VII. There Are Worlds Without Money.

Paul Krassner, editor of **The Realist**, *who co-edited "The Last Supplement to the Whole Earth Catalog" with Ken Kesey, is writing a satire titled* **Tongue Fu**, *which will appear in* **The COEVOLUTION Quarterly** *and the* **Whole Earth Epilog.**

—SB



Hello place.

If you're traveling chickens are hard to keep. But chickens are fantastic things to get to know. Constant and easy personalities to see and be with. They are productive folks as well. It's a gas when your rooster thinks you are trying to make it with his hen and he comes rushing at you with spurs and feathers everywhere. And watching an egg get laid is a hot steaming rush.

Larry Maurer
Fullerton, California

DRINKING.

If you drink to get stoned, or to participate in the general metamorphic trends, but you don't like to get sick or hung over, just blasted and temporarily truthful and happy, then drink straight hard liquor and beer chasers. Mixed drinks will kill you with twitches and nervous conversation. Wine is healthy and natural, like vanilla, and not so sudden as whiskey, but when wine is used as a food and fuel, it burns out your memory and gives you the runnies. Don't worry about all the cigarettes you smoke when you drink, because the alcohol is harder on your body than the smoke. Try smoking only when you are drinking (science). If you don't like what you are drinking, then don't drink it (philosophy). Buy someone a drink (economics). Pass the bottle around (politics).

J.D.

Idaho letter

dear epilog

alladin lamps are kerosene gobbling, temperamental, luxury lamps they use just about twice the kerosene per time unit as the standard flat-wicked glass bowl kerosene lamp. alladin mantles travel no better than coleman mantles. there is a bright side: for close work, like embroidering tarot cards on shirt pockets, the alladin gives about twice the light of the flat wicker, if folks bought everything but the font, or fuel container, how much would they save? would it make it worthwhile to use a pound prince albert can, for instance?

the handyman jack, or mountain jack as they call them around here, are good lifters. we broke the shear pin on one lifting the downhill side of a 16 by 20 log cabin. a little stronger shear pin and a four foot cheater, and the house came pu. used one as a cider press. in the middle of the winter. by notching out a power pole to jack up againse and putting the butt down into a round plunger rigged into a worn out three gallon canner. we pulled out the powerpole and got apple toothpaste out of the holes drilled in the canner.

the hohner marine band harmonica. if you start by blowing, you stay in the key of the harmonica. if you start with a suck, you cross the harp, and come in backwards to the song, blues.

i think the keseys make the gallon plastic jug that you buy milk in around here. the jugs get used for more than milk. we haul drinking water in them. cut in half and upside down you get a funnel, with the bottom half used for rabbit water. with the handle left on and the quarterface opposide the handle cut out, its a water dipper. with the handle left on and the quarter face below it cut out you can catch crankcase drainings. i saw a pole lamp in mccall with the top halves being used as shades. snowmobilers are strapping gas in them. larry usee the flat sides and cut out the alphabet for the kids to trace around.

grey duct tape: arno, michigan city, indiana, 46360, 2 inches by sity yars, grey supertape, but not as super as what the government uses to steamfit its battleships. seems like a citizen should be able to buy anything that the government can.

well, thats all,

love,

jd

Bicycle Gardens

The interstate highway system would make an ideal living transportation system. Already right in place is a fine foundation for a continuous string of houses stretching from Maine to San diego, from Florida to Seattle; think of it, next door neighbors from coast to coast, with rural breathing space out the front and back doors. Two lanes would do fine as foundation, the other two lanes would serve more than admirably as bicycle paths, especially with the extensive grading done which levels out hills and finds passes in the mountains. The people living in the string of houses could provide services for the pedal pushing passers-by, things like bed and breakfast, bagel bakers, pickle packers, bike fixers, story-tellers, saddle menders and makers, book depots, tea houses, restaurants, sauna baths, ping-pong and pool parlors and pizza palaces. The right of way could be cultivated — bicycle gardens.

Merce

P.S. The Energy Crisis is a tourniquet on a hard-on.

An Extremely Short Political Editorial

Impeach.

—SB —DS —PC —AF —S —JB

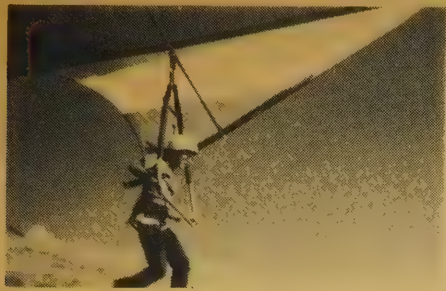
Credits

Whole Earth Epilog preview in **Harper's** "Wraparound":

Editor	**Stewart Brand**
Office & research	**Diana Shugart**
Research	**Pam Cokeley**
Managing Editor, photography	**Andrew Fluegelman**
Layout	**Steamboat**
Typesetting	**Joe Bacon**
The CQ title face	**Arthur Okamura**
Host Editor	**Tony Jones**

We're grateful to **Harper's** *for the considerable freedom we've been given in a careful magazine. Guest editorship is always a kind of trespass, hopefully worth it. In* **Catalog** *tradition we should mention some numbers --- Harper's paid POINT approximately $4200 for preparation and production of this 'Wraparound'; circulation is about 350,000. -SB*

Whole Earth office and staff, Sausalito, California.



Hang Gliding

No chance of an objective review here: I hang glide.

It is body-flying, the flying of dreams. You take a run off the top of a hill, climb onto the wind, and soar with the hawks. It's hazardous — you become careful. It's hard carrying the 35 lb. wing back up the hill — you become strong.

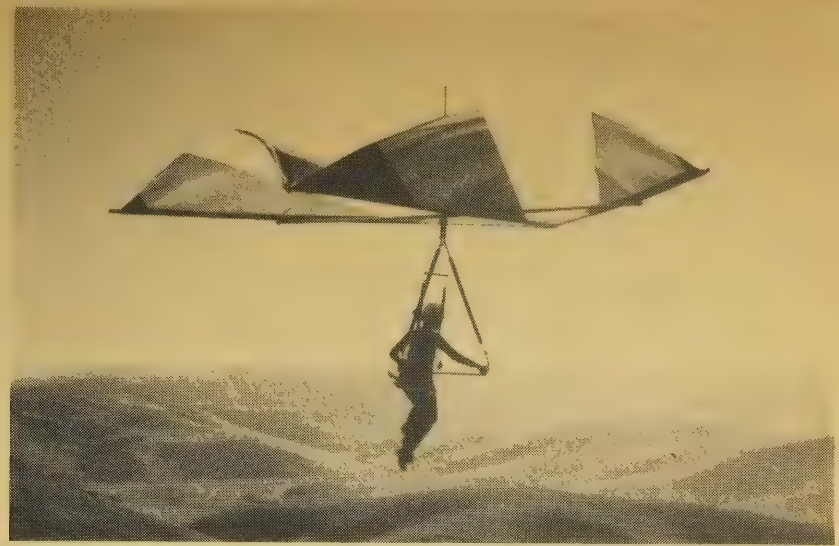
Learning is best to do with a skilled flier. If you've skied or surfed much you'll find the knack comes quickly. It's important to learn to assess your ability and never fly in stronger winds or tougher terrain than you can handle. You'll start on gentle open 50-100 ft. slopes.

The sport is new, invented but three years ago, with only one brand-new book about it — a good one, covering instruction, history, kits, design, and manufacturers.

Hang Gliding
Dan Poynter
1973; 205pp.
$4.95 postpaid
from:
Hang Gliding
48-G Walker St.
North Quincy, Ma. 02171

or W.E.T.S. or T. for L.

As for manufacturers of the Rogallo Wing (which unrigs and transports with exceptional ease) here are the top ones, each of them offering kits and readymades. The one I know best is MANTA, which has an adjustable control bar for sitting or prone flight. Kits are $300-400, finished wings $400-600, depending on size and features. Manta runs a good school in the San Francisco Bay Area. BENNETT, somewhat expensive, has the largest sales of any manufacturer. EIPPER builds a good wing and runs a school in the Los Angeles area. ULTRALIGHT PRODUCTS has the best hardware and kits. SEAGULL is a different wing, broader in the beam, with a curved leading edge: they also have a school.



Manta staffer Eileen Preville launches in the California Coast Range.

Manta Products
1647 East 14 St.
Oakland, Ca. 94606

Bill Bennett Delta Kites
Box 483
Van Nuys, Ca. 91408

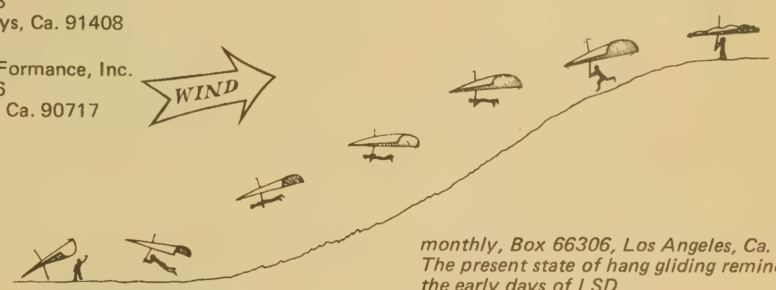
Eipper-Formance, Inc.
Box 246
Lomita, Ca. 90717

Ultralight Products
137 Oregon St.
El Segundo, Ca. 90245

Seagull Aircraft
1554 Fifth St.
Santa Monica, Ca. 90401

Since the sport is evolving so quickly, it's worth getting the periodical **Ground Skimmer** *($5/yr. monthly, Box 66306, Los Angeles, Ca. 90066). The present state of hang gliding reminds me of the early days of LSD.*

—SB



An Eipper-Formance drawing of the flight sequence.

THE CANNULA ABORTION

by Stephanie Mills

Abortion is the commonest method of birth control in the world. It has also been the most dangerous, whether performed by physicians in hospitals with conventional instruments or induced by back country midwives with sticks. Women have risked and lost their lives terminating unwanted pregnancies since time began.

A recently accepted technique may change all that.

The accepted medical practice for abortion, dilation and curettage, subjects women to cervical laceration, uterine perforation, hemorrhage, and death. It involves dilation of the cervix by steel rods of increasing size. This procedure is quite painful, and may require general anaesthesia, which increases the risk to life. The cervix is "stabilized" by being held with toothed tenacula while the womb is scraped with a steel curette. It is incredibly bad design which attempts to make the uterus conform to the instruments and procedure they require.

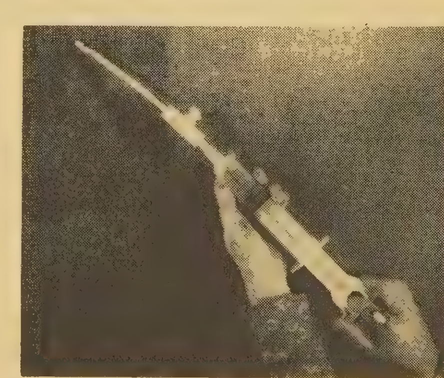
The Karman cannula is a narrow, blunt, flexible plastic tube, closed at the end and notched. (See illustration.) Attached to any vacuum-creating apparatus it effects a suction abortion in about two minutes. Since the cannula is blunt and soft, the risk of uterine perforation is virtually nil. Suction and gentle scraping of the uterus with the cannula seem to result in far less bleeding after the abortion.

The cannula method is fast and (potentially) cheap enough to be used when a pregnancy is suspected, but cannot yet be confirmed by a test. In such very early abortions, the smallest available cannula (4mm) can be used, and no dilation of the cervix is necessary. In abortions requiring the use of a larger bore cannula, smaller cannulae may be used as dilators.

Karman has devised a syringe for use with the cannula which incorporates a couple of features for maintaining a fail safe vacuum. (However, one Dr. consulted about the kit felt that the syringe is pretty flimsy.) A kit consisting of a syringe, speculum and a number of cannulae of various sizes will be distributed by several international groups. A program is being set up to train paramedics in its use. It can be expected that the device will eventually filter back to midwives and may, in time save millions of women's lives.

The no-touch technique for using the cannula minimizes the risk of infection. A sterile cannula is inserted directly into the uterus without coming into contact with the walls of the vagina (which are obviously not sterile).

The cannula and syringe are prescription items, and are not for unskilled use. That doesn't mean that it takes a doctor to perform a cannula abortion, but it does mean that anyone attempting one had better have some training. Further information on this technique is available from the National Women's Health Coalition, 222 E. 35th St., New York, New York 10016.



•

Stephanie Mills is a writer and director of Planned Parenthood who suffered an early fame in 1969 with a valedictory address to her graduating class at Mills College which announced that she, personally, was going to have no babies. The Energy Crisis after all, and the Food Crisis to come, are really Customer Crises. Too many users. "Cannula" is pronounced CAN-ewla.

—SB

Re-designing Both Ends of Energy Use

Austerity is another name for elegance.

Using only energy mined from local wind and sunlight and manure is a thin budget. You've got your collectors, digestors, and windchargers working, and you've chopped down the power lines from town. Your next trick is surviving that way — another whole set of inter-related design problems.

Only three research groups I know of have the skilled experience and originality to have made much headway (I'd like to hear of others). The New Alchemy Institute — a double community of biologists and engineers at Cape Cod and Santa Barbara. Integrated Living Systems — a mountain laboratory of designers in fact operating in energy isolation. Zomeworks — a company of inventors and communicators in Albuquerque.

—SB

The New Alchemists

The New Alchemy Institute is a small international organization for research and education on behalf of man and the planet, seeking solutions that can be used by individuals or small groups who are trying to create a greener and kinder world.

To this end we look to the power of the wind and the sun to provide us with energy that is non-polluting, less than finite and immune to embargo. We couple our windmills, domes and solar heaters to biological systems where animal protein in the form of fish is grown in sun-warmed ponds. The pond water fertilizes the gardens and fields where food crops are grown. The gardens are worked organically, following as closely as possible a policy of stewardship, returning to the earth in care and compost as much as is taken.

The Institute has a membership program available to anyone with an interest in our goals. Annual membership is $25.00, and members receive publications of the Institute, including the "Journal". The New Alchemy Institute, Box 432, Woods Hole, Massachusetts 02543.

THE ARK: A SOLAR-HEATED AND WIND-POWERED GREENHOUSE AND AQUA-CULTURE COMPLEX ADAPTED TO NORTHERN CLIMATES.

The complex includes a sunken greenhouse, an attached aquaculture pond, a solar water heater and a diversity of light and heat conservation and distribution components. It is an integrated, self-regulating system requiring the sun, power for water circulation, waste materials and labor to sustain its productivity. The electricity to drive the circulation pump will ultimately be provided by a 6 kilowatt windmill. The heat storage — climate regulation component is a 13,500 gallon aquaculture pond. Solar heat is trapped directly by the covered pond and by water circulating through a solar heater. The attached greenhouse is built below the frost line and derives its heat from the earth, direct sunlight and from the warmed pond water passing through pipes in the growing beds within the structure. Details are provided in the second "Journal of The New Alchemists".

The intensive fish farming component is comparable to those already pioneered by the Institute. Several crops of Tilapia fish will be cultured throughout the warm months on foods raised within the structure. A single crop of trout and perch will be raised during the cooler seasons. It is our hope that the aquaculture component will be productive enough to underwrite construction and maintenance costs and that the greenhouse component will provide abundant marketable vegetables and greens.

A SAILWING WINDMILL FOR PUMPING WATER

Our sailwing windmill at New Alchemy on Cape Cod is beautiful to watch as it turns in gentle breezes, pumping water from a lake some 15 feet below to a storage tank that feeds a series of tiny aquaculture ponds. In 10 mph breezes it is capable of pumping 6,000 gallons daily. The mill cost only a few hundred dollars to construct, and is described in the first "Journal of The New Alchemists".

The highest potential of windmills like this will eventually be realized in arid lands. They will pump ground and stored water to fish culture ponds, and from the ponds to fields and orchards to irrigate and fertilize tree and food crops that in turn will nurture small communities. If you want to observe the wind at play and to move water around, build one.

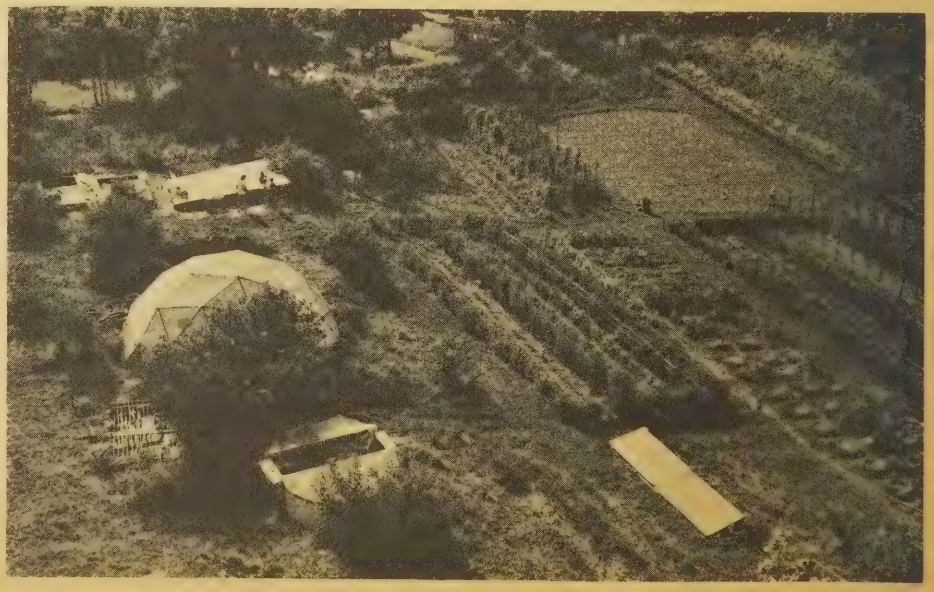
FISH PISS: THE LINKING OF AQUACULTURE AND THE RAISING OF VEGETABLE CROPS

In 1970 we performed an interesting laboratory experiment in watering lettuce and parsley plants with enriched water from a densely populated aquarium. A series of plants was grown in flower pots. Half of them were watered with tap water and half with water from a 55 gallon tank containing 8 small catfish. The plants watered from the aquarium grew faster and were visibly larger than those which received tap water.

This year the experiment was repeated outdoors on a larger scale. Leaf lettuce, beets and zucchinis (leaf crop, root crop and vine crop) were the vegetables used. Half of the plants received tap water while the others received water from one of our aquaculture ponds containing about 700 tilapia and a heavy algae bloom. Beets and zucchinis did not respond to the enriched water, but the lettuce was a different story. In three successive experimental trials involving 69 to 98 lettuce plants, the weight of edible lettuce produced in the pond water plots exceeded that from the tap water plots by 44.3%, 67.9% and 121.6%.

We conclude that vegetable growers having access to fish pond water would be well repaid for the effort of applying such water to shallow rooted leaf crop vegetables, particularly those which, like lettuce, favor abundant moisture and high levels of fertilization.

There are other benefits from connecting pond and garden cycles. We found that the tilapia fish avidly consume vegetable crop wastes, especially carrot tops and a variety of weeds from the gardens. The various links create a productive cycle: plants for the fish and man, fertilizer and moisture from the fish ponds for the plants, and the steward gently orchestrating the whole.



New Alchemist covered ponds & gardens at Cape Cod (from the windmill).

Integrated Living Systems

The question remains, how do we implement new technology into society. I feel that we initially must appeal to the American public's imagination with solar hardware which: (1) is economically competitive, (2) is systemically designed (all dependent parts interfaced into an ordered system established under specific objectives), (3) has minimal environmental impact, (4) has minimal energy investment in the original materials, (5) is a bold step ahead of contemporary hardware, (6) is not stop gap in character, (7) has a long life time and will remain practical for many years, (8) is useful for export (the energy and housing problem is a planetary problem).

For the first time, it is possible to begin to meet the aforementioned hardware qualifications in a home. Such home is the ILS Prototype I which is totally powered by the sun and the wind. By using systemic design where energy efficiency and minimum costs are major design parameters, such home has evidenced that it is possible to build housing which is cost competitive with mobile homes and which is energy autonomous, in most geographic regions in the United States.

Because of the ILS Laboratory's reach for an ideal, we have learned from the self imposed constraints of using only the sun and the wind as sources of energy that refrigeration, cooking techniques, lighting standards, toilets, etc., must and can be redesigned to maximize their energy efficiency. Much of this upgraded hardware could be used to lower the overall energy demand when installed in conventional housing.

The ILS Prototype I system uses 20% of the electrical energy and 10% of the thermal energy required in an average house. It is important to mention that all of the electricity, hot water and space heating are provided by the sun and the wind with no back up. During the past winter, the site of the ILS Prototype I experienced 119 inches of snow and more than a week at a time of no sun or wind. Temperatures were down to ten degrees below zero Fahrenheit. The energy systems of the Prototype functioned normally.

A prototype like ILS I would have cost industry about $500,000.00. The capital outlay for Prototype I was about $12,000.00 and two man-years. Our monetary efficiency demands much research and development at reduced costs.

ILS Labs is a laboratory. It in itself is an experiment. We are not a business but a team of ten people who design, construct, and live in systems which can ultimately be brought into society by other impact groups. Our goal is to build a larger laboratory with some two hundred scientists, engineers, designers, lawyers, doctors, artists, anthropologists, communications people and the like, working together in a new way with a sense of urgency to provide new tools, models and methodologies to grapple with the broad problems of energy, people and habitat. We have the hardware to build a very inexpensive physical plant for the laboratory in a very short period of time. The ILS system hardware allows for the first time energy autonomous communities to be built. Many national laboratories have been created to respond to urgent national problems. It is time to build a laboratory which responds to the urgent problems of energy and appeals in its physical form and objectives to kindle the imagination of the ILS staff as well as the American public.

Thank you,

Robert G. Reines
Director, ILS Labs
Star Route 103
Tijeras, N.M. 87059

ILS Labs domes (from one of the windmills).

Zomeworks

Besides designing and building solar and structure systems, Zomeworks does occasional publishing and conference organizing — more inventive, if possible, than its devices. The most recent conference (Halloween, 1972) brought together a zoo of old-timers and outlaws in the alternative energy spectrum. Here are excerpts from the proceedings (Life Support Technics, $1.50 from Biotechnic Press, Box 26091, Albuquerque, N.M. 87125).

—SB

Some of the speakers who clearly explained their theories and methods found that ... those who gathered to listen to their talks were not serious enough — did not pay attention to what they were saying or demonstrating, that they didn't ask the right kinds of questions — that whatever it was that brought them to the same meeting was at best accidental, but was perhaps a lie imbedded in society that brings together opposites, that surrounds prophets not with those who would catch fire with their message, but rather groups that drown and trample them. But in a deceitful way — nodding their heads — "Yeah man — right on — you got it!" ...

Euclid's parallel axiom was found to be independent of the other axioms of Euclidean geometry. You can negate it and still find models in which everything built from the other axioms thrives. This same kind of study is needed in our technology....Technology quickly links itself into the world where you can't bite it without biting yourself. Every invention and method that facilitates the production of anything we use is taken in, achieving immunity from questioning. Fortunately we have history. There is proof that life existed before the transistor, TV or the internal combustion engine.

Steve Baer

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Actually in the Depression period, before the Second World War, there was a movement called the Decentralist-Distributist Movement in America in which a great many people were discussing the very things you're discussing now — not in the same language — but the need for reaffirmation of the way of life adapted to the land and not tied in heavily to urban concentration. Go back to the 1840's — there was a strong period of idealistic community building, trying to recapture these same roots. As a matter of fact, these ideas are part of the original American ideals — the whole Jeffersonian concept of the kind of society that we were going to build here — small, land-based, largely self-governing, self-provisioning communities, which were tied together in a federation. I think all these attempts are an attempt to recapture the original American dream.

Peter Van Dresser

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One speaker noted that Libre operated a "total life support system" for thirty two people on 50 kilowatts per month -- a considerable improvement, he felt, over Bob Reines' figure of 10 kilowatts per day for the average one-family home. This saving was achieved in part by reducing demands for power — learning to get by with less — but the residents of Libre didn't consider this a hardship: "We're not in any way uncomfortable; we're living in luxury, absolute luxury."

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WIND ENERGY

If you're going to put together a wind generating system from new components, you'd better plan to spend around $2500. That's a lot of money, but if you want your own non-polluting alternative to Four Corners power plant, you have to pay the piper. A lot of that $2500 goes for storage, since the wind is a variable power source. If you could do without storage, or if you can find used components, or surplus components, or make your own components, you can save money. You can also save money if you are willing to compromise your life style and do without some of the uses of electricity found in the typical American home. The initial expense is high, but you won't have any more electric bills. Remember, the price of electricity is going to keep going up.

If you are going to build a wind generating system, you should plan to spend about 10 hours studying for every hour of construction. A lot of this stuff gets very technical, but don't let that scare you off. Just jump right in and learn the answers. The three biggest resources you have are people, the phone book, and libraries. There are people walking around who have the answers to a lot of the questions and problems you will run up against. There's a university in Albuquerque with an electrical engineering department. Talk to people who sell wire. Call the manufacturer of batteries. If somebody tells you you need an external shunt (for example), go to the library and find out what that is.

Bob Reines

The Big Strange Picture

(Strange?)

Estranged. While our growth curves shoot the moon our sense of normal has rotated 90% from horizontal to vertical. The parasite has lost all sense of its host.

(You rave beautifully.)

Maybe the parasite never did sense its host, though I've not met a native culture that didn't know and celebrate its place. I was in a dream with Gregory Bateson the other night, playing my usual Boswell to his Samuel Johnson. Walking down a hallway I asked him what was the difference between a growing system and a mature one. "Measured medium," he said, and departed. The meaning I puzzled out of it (in the dream) was that a growing system measures only itself and eats to grow, whereas a mature system measures itself and its medium and eats to balance.

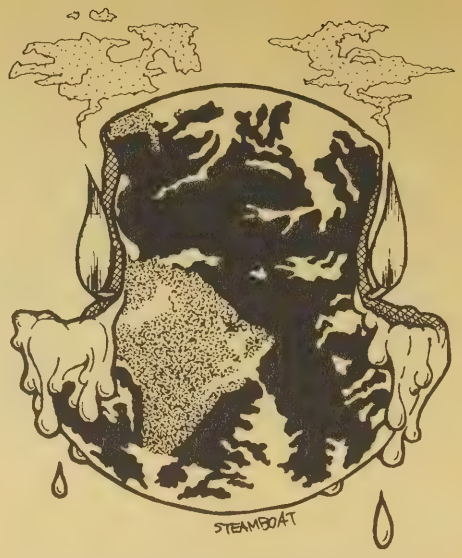
(Checked that with Bateson?)

I'm afraid to.

(Have you checked any of your Apocalyptic Enthusiasm with anything besides other Apocalyptic Enthusiasts?)

Of course not. It's all second-hand or speculation. My culture goes to great effort to insulate me from any experience of privation. The price of gas and food is up, as if reflecting a coming scarcity instead of just the cost of delivery. That's the first thing besides talk to reach me. The reason I believe that the Apocalypse is not merely a self-fulfilling prophecy is those absolute quantities on the old Ball of oil, coal, arable land, and standing room. "You can't," said David Crosby, "bullshit the ocean."

(Nuclear power might, no set-up, really might invalidate your whole beef.)



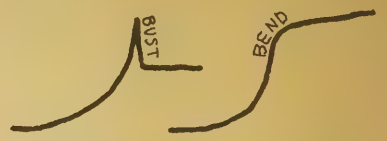
And a dome really might not leak. But they always do. A single "perfect" technological skin doesn't make it — one pinhole and you're wet. There's no redundancy, no margin. Nuclear technology requires vast perfection — elaborate containers and transport for a vicious brew of radiation, zero-defect reactors, a huge managerial reich, sabotage-proof administration. It's a Satanic price.

(No doubt you have a better program.)

Yeah. A steady-state energy-economy coupled with a growth information-economy.

(Beg pardon?)

Figure that the growth information-economy goes on anyway — call it cultural evolution or Fuller's "doing more with less" or McLuhan's implosion — it's doing fine. But the energy-economy is approaching a bend-or-bust point. Scribbled:



(What's that upward angle after the bend?)

That's points for sophistication and for being wise about bending.

(You got it all figured out, huh.)

Not likely. Nor figure that anyone can figure it out — not if it's healthy. Human consciousness is too narrow to contain the big balance. We got power galore but as Ehrlich says, Power is not control.

(What is?)

Variant parallel systems. Local self-interest kept local by local competition and whole-system level-seeking — not homogenization, please.

(Does that mean anything?)

It means some respect and trust in controls besides our own ... a lot of wholesome inefficiency ... and renewed knowledge that participation in the sacred requires playing fair.

(By whose rules?)

Right.

(Rite?)

—SB

Energy: Water: Food

The demand for capital by the energy industry is pushing interest rates way up. The petroleum producers figure they will need 1,300 billion dollars for capital investment between now and 1985 to meet demand worldwide. That amount is bigger than the total US GNP today and to achieve it the petroleum industry will need to grow at a yearly rate of 18% for the next fifteen years. Either consumers will pay industry or the consumers will be taxed by government for same.

An aside on all this is the effect on food prices. I fear that an attempt to double current energy consumption will vastly increase the drain on scarce water supplies. If this happens, water intensive crops will suffer hugely and prices will rocket. Water intensive energy sources are: shale oil and Wyoming coal and nuclear power. Am looking for figures on the water demand of energy sources and water demand of foods. Will send some conclusions soon.

Jim Harding

House Energy Improvements

The best rundown we've seen on what you can do to your home to reduce heat loss (winter) or improve cooling (summer) by intelligent design and simple improvements: "Living With the Energy Crisis", 25 cents postpaid from Small Homes Council — Building Research Council, University of Illinois, One E. St. Mary's Rd., Champaign, Illinois 61820.

Seeds too?

Shortages you won't believe are going to exist this next year again, both flower and vegetable seeds, but more particularly in vegetable seeds. For instance, something as ridiculous as Purple Top White Globe Turnip is going to be almost unobtainable. Gardeners will be well advised to order early this year, preferably in January and February to try to beat the crunch.

It's sort of unfortunate that this year when there is going to be such a surge in enthusiasm for gardening, that we're encountering the many shortages that we see. In vegetable seed alone, many varieties are in extremely short supply, and while this may not be immediately felt on the seed rack or in the catalog, eventually it is going to be felt somewhere. Many of the green beans are short, the lima beans are short, beets are short, some of the carrots are short, some of the cucumbers are short, some of the lettuce is short, all of the onions are short, parsley is short, parsnips are short, peas are short, sugar peas are almost non-existent, some of the pumpkins are short, some of the radishes are short, several varieties of spinach are short, many of the squash varieties including both summer and winter are short, some varieties of tomato are short, turnips are almost non-existent, and a few varieties of watermelon are short.

Why all these shortages? We don't know. There are a lot of different reasons, including bad growing conditions last spring, crops which simply did not make seed as we had anticipated, shortages in South Africa (where a lot of green beans are grown), shortages in Taiwan, shortages all over Europe from bad crops, etc.

Sincerely,

W. Atlee Burpee Co.

Gerald F. Burke,
Vice President

Nuclear Briefing, Nov. '73

The only way nuclear power would ever be conceivably safe would be if you had a society of perfect humans totally robotized where no materials ever failed, no directions were ever followed poorly, where no sabotage ever existed, where no acts of God ever occurred where there were no psychotics, no angry people, a society that no one has ever remotely visualized. And that by the way, that requirement comes from a leading nuclear expert, Dr. Alvin Weinberg. He said, we just want to make a Faustian bargain with society — you give us a perfectly tranquil society and we'll give you nuclear power. The absurdity of a society of that sort is so self-evident that we long ago should have stopped the nonsense of nuclear fission energy.

Dr. John Gofman

Basic Energy Unit

Suppose we determined what is the basic energy requirement per year per American family. Call that quantity x. Every family could get x juice for a set resonable price. But 2x would cost four times as much, 3x nine times, etc. Or, let all energy buying above x amount be at whatever price an unsubsidized open market arrives at. This idea is Huey Johnson's (head of Trust for Public Land), based on Henry George's land tax theory — no tax on minimum family farm land, multiple taxes on more than that unit.

—SB

Energy, Ecology, and Economics

I know something's up when two different people urgently send me fourth-generation xeroxes of the same article, which they did with this paper that Howard Odum prepared in 1973 for the Royal Swedish Academy of Sciences.

It is the most insightful view of the energy future I have read. Also the harshest. We hope to reprint later the entire paper to include Odum's elaboration following each of the twenty points. His recent book **Environment, Power and Society** *($5.95, Wiley) presents his elegant notation system for energy cycle accounting and the background of his remarks here.*

–SB

1. The true value of energy to society is the net energy, which is that after the energy costs of getting and concentrating that energy are subtracted....

2. Worldwide inflation is driven in part by the increasing fraction of our fossil fuels that have to be used in getting more fossil and other fuels....

3. Many calculations of energy reserves which are supposed to offer years of supply are as gross energy rather than net energy and thus may be of much shorter duration than often stated....

4. Societies compete for economic survival by Lotka's principle (3), which says that systems win and dominate that maximize their useful total power from all sources and flexibly distribute this power toward needs affecting survival....

5. During times when there are opportunities to expand one's power inflows, the survival premium by Lotka's principle is on rapid growth even though there may be waste....

6. During times when energy flows have been tapped and there are no new sources, Lotka's principle requires that those systems win that do not attempt fruitless growth but instead use all available energies in long-staying, high diversity, steady state works....

7. High quality of life for humans and equitable economic distribution are more closely approximated in steady state than in growth periods....

8. The successfully competing economy must use its net output of richer quality energy flows to subsidize the poorer quality energy flow so that the total power is maximized....

9. Energy sources which are now marginal, being supported by hidden subsidies based on fossil fuel, become less economic when the hidden subsidy is removed....

10. Increasing energy efficiency with new technology is not an energy solution, since most technological innovations are really diversions of cheap energy into hidden subsidies in the form of fancy, energy-expensive structures....

11. Even in urban areas more than half of the useful work on which our society is based comes from the natural flows of sun, wind, waters, waves, etc. that act through the broad areas of seas and landscapes without money payment. An economy, to compete and survive, must maximize its use of these energies, not destroying their enormous free subsidies. The necessity of environmental inputs is often not realized until they are displaced....

12. Environmental technology which duplicates the work available from the ecological sector is an economic handicap....

13. Solar energy is very dilute and the inherent energy cost of concentrating solar energy into form for human use has already been maximized by forests and food producing plants. Without energy subsidy there is no yield from the sun possible beyond the familiar yields from forestry and agriculture....

14. Energy is measured by calories, btu's, kilowatt hours, and other intraconvertible units, but energy has a scale of quality which is not indicated by these measures. The ability to do work for man depends on the energy quality and quantity, and this is measureable by the amount of energy of a lower quality grade required to develop the higher grade. The scale of energy goes from dilute sunlight up to plant matter to coal, from coal to oil to electricity and up to the high quality efforts of computer and human information processing....

15. Nuclear energy is now mainly subsidized with fossil fuels and barely yields net energy....

16. Substantial energy storages are required for stability of an economy against fluctuations of economies, or of natural causes, and of military threats....

17. The total tendency for net favorable balance of payments of a country relative to others depends on the relative net energy of that country including its natural and fuel-based energies minus its wastes and nonproductive energy uses....

18. During periods of expanding energy availabilities, many kinds of growth-priming activities may favor economic vitality and the economy's ability to compete. Institutions, customs, and economic policies aid by accelerating energy consumption in an autocatalytic way....

19. During periods when expansion of energy sources is not possible, then the many high density and growth promoting policies and structures become an energy liability because their high energy cost is no longer accelerating energy yield....

20. Systems in nature are known that shift from fast growth to steady state gradually with programmatic substitution, but other instances are known in which the shift is marked by total crash and destruction of the growth system before the emergence of the succeeding steady state regime....

–Howard T. Odum

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Says Stephanie Mills,

STAY TUNED

Camped as we are on the outskirts of this month's issue, we at **WRAPAROUND** would like to use the special vantage to say:

First, we owe a great debt to the thousands of you who have written us during the past fifteen months. We started with the idea of **WRAPAROUND** as a place for exploration and exchange. We asked you to think of these pages as an extension of your own processes of discovery, and to contribute whatever information, perspectives, resources, and ideas were proving valuable in your own lives. The generosity of the response—in spirit and in volume—has confirmed and extended our belief in the importance of sharing personal experience. In future issues we will be experimenting with ways to find more space for your contributions.

Second, we want to mention subjects we are considering for upcoming issues. The list, in no particular order: holistic medicine, adventure, craftsmanship, television, cosmic mysteries, the brain, a sense of place, patriotism, sleep, shelter, small proposals for making cities livable, death, race relations, and the telephone. We hope you will send us specific leads, thoughts, and suggestions.

Third, the adjacent display is a reminder that we have a limited supply of past issues of **WRAPAROUND.** They are available on a first-come, first-served basis for as long as they last. To order, specify the titles you want and the number of copies of each title, and send 25 cents per copy to: **WRAPAROUND,** Harper's Magazine, Two Park Avenue, New York, N.Y. 10016.

Getting Work with Whole Earth

All we do is evaluate and write and organize and publish— 70% evaluate, 10% write, 10% organize, and 10% publish.

Evaluate-and-write you can do from where you live. If you think something would be good for the WHOLE EARTH EPILOG, suggest it. If you know it's good, review it. You get $10 and credit for each review and first-suggestion used.

If you show considerable skill in evaluating and writing about a particular subject (or number of subjects), you may become the research czar of that domain, and we send research material to you and pay you by the hour. (Until a better czar comes along.) Sometimes a research czar takes over the editorship of a part of the CATALOG, as Lloyd Kahn did with the "Shelter" section.

Then there's getting stuff in **The CoEvolution Quarterly**. *$10 per short letter (more for more). $10 per item sent that we reprint (article, paper, etc.) $50-100 per original article, paper, photo spread, drawings, etc. If you demonstrate a whole working network of unusual and relevant people and goodies, you might get a shot at guest-editing an issue of* **The CQ**— *$5/hr and POWER.*

Occasionally **The CQ** *is edited and produced somewhere at large in the world— we've done two in various deserts.*

We're also hiring— gradually— essential functionaries such as layout people (40 hr weeks during productions; complete vacation between). We need a professional indexer to prepare the comprehensive index for EPILOG and CATALOG. A photo technician for the copy camera and photostat machine. A meticulous keeper of the update department. Pay runs $3.50—4.50/hr depending on experience and time working here.

We hire for office work strictly on a combination of blazing competence and gentle congeniality— low vibe. We're too busy to supervise each other. Decisions tend to be individual or at most two-person. Employees keep their own hours and set their own vacations.

If you're thinking about an office job here, send some of your work first (to Box 428, Sausalito CA 94965), then arrange for an interview. We're hiring slowly.

Reviewing for Whole Earth Epilog

Give the information you would like to get. This should include what the item is good for, how it compares with others, and some clue of how competent you are to judge. If you're passionate about the subject, be passionately informative. And succinct.

Avoid comments like "This is a good book." Prove it...

> *With this remarkable book, a shareable investment in equipment, and a few days of work, you can fill your life with a celebration of bells. No author, not even Enzian, has a wider experience of Tibetan Bell Casting than Slothrop, and none have prepared a text so comprehensive. His diagrams alone suffice to make bell-casting understandable to the beginner. The bonus of clear prose and exotic tales make this one of the great adventure books of craft. After comparing both the French and Russian techniques — long considered the height of bell-casting — I'm forced to agree with Slothrop that the Tibetans have the most direct method of ringing the Inner Ear of the mind. Bell-casting materials are not expensive. The author evaluates the various suppliers of North America.*

Do not rave about an item which is merely good or only the best of a bad lot. Also don't waste time picking nits with the author unless the matter is something the reader has to know about. If the item is bad, don't review it. Tell us why it's bad and what's better.

Write as you would in a letter to some specific person you respect and like. As they used to say at **Life**, *"Never underestimate the reader's intelligence. Never overestimate the information he has to go on."*

Resist showing off or making funny. Also resist impersonal gray business prose. YOUR FUNCTION IS TO PERSONALLY INTRODUCE THE ITEM AND THE READER TO EACH OTHER AND GET OUT OF THE WAY.

The savvy reader will make most of his judgements on samples from the item — quotes, illustrations, etc. Select good ones. Mark them as you read through the item — bits you didn't know before, bits that contain the essence of the item, bits that pass on a whole useable idea to the reader. A perfect selection of excerpts — six or ten short ones — should gut the item, make reading it unnecessary.

Study some reviews and excerptings in **The Last Whole Earth Catalog**.... *Do better.*